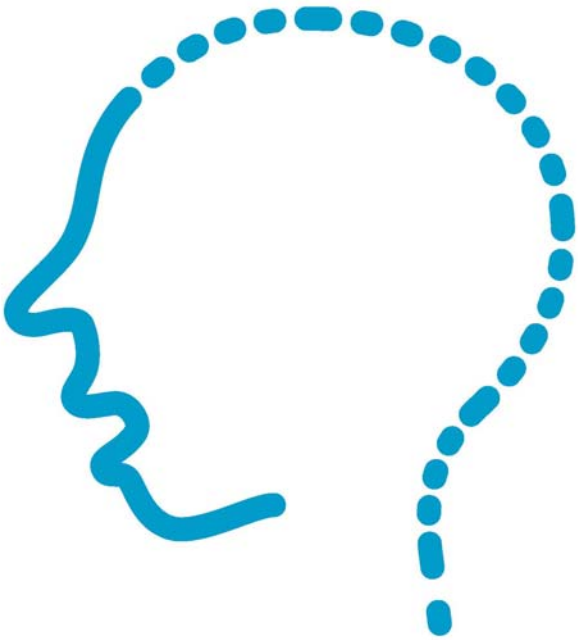


INTERNATIONAL
INTERDISCIPLINARY
CONFERENCE

NeuroCultures – NeuroGenderings II

13-15 September 2012

universität wien

REFERAT
GENDER
FORSCHUNG

Personal Notes

NeuroCultures – NeuroGenderings II

Programme – Booklet of Abstracts

In co-operation with the feminist scientists network NeuroGenderings, the Gender Research Office and the Chair in Gender Studies at the University of Vienna organize a three-day international, interdisciplinary conference programme on sex, gender, and the brain to discuss the mutual entanglements between brain research, various academic disciplines and public discourse.

Venue: Lise-Meitner-Lecture Hall (1st Floor), Faculty of Physics
University of Vienna, Strudlhofgasse 4/Boltzmanngasse 5, 1090 Vienna, Austria

Web: http://neurocultures2012.univie.ac.at
E-Mail: neurocultures2012.gender@univie.ac.at

About the NeuroGenderings Network

Formation
In March 2010, the Center for Gender Research, Uppsala University, hosted the international and transdisciplinary workshop "NeuroGenderings", funded from the Swedish Research Council in the excellence program "GenNa: Nature/culture and transgressive encounters" and by its Body/Embodiment Group. Experts in the field of gender & brain research evaluated the current state of neuroscience methods, evidence, and interpretations regarding sex/gender in the brain. As result of this meeting, scientists from Europe, the US, Canada and Australia from different disciplines such as neuroscience, neurocultures, the humanities, social and cultural studies, gender studies, feminist science studies, and science and technology studies, launched the Network NeuroGenderings to improve reflective analysis within/of the neurosciences and to initiate dialogue across disciplinary borders.

Aims
The aim of this group is to elaborate innovative theoretical and empirical approaches to address the question of sex and gender in the brain; to analyze the social and political underpinnings of the ongoing "cerebralization" of human life and especially of gender; to evaluate the current state of neuroscientific methods, evidence, and interpretations regarding sex/gender in the brain, and to discuss the impacts of neuroscientific gender research in socio-political and cultural fields. Some of these approaches can already be read in a special issue of Neuroethics, "Neuroethics and Gender" (papers published online first: http://www.springerlink.com/content/120989/?Content+Status=Accepted; the final issue will be available in late 2012).

The present **members** of the NeuroGenderings Network are:

Isabelle Dussauge (University of Uppsala, History of Technology and Science) | **Cordelia Fine** (University of Melbourne, Cognitive Neurosciences/Psychology and Gender) | **Hannah Fitsch** (Technical University Berlin, Psychology) | **Katarina Hamberg** (Umeå University, Healthcare and Clinical Medicine) | **Rebecca Jordan-Young** (Columbia University, Social Medicine and Gender) | **Anelis Kaiser** (University of Freiburg, Neuropsychology and Feminist Science Studies) | **Cynthia Kraus** (Lausanne University, Philosophy and Gender Studies) | **Emily Ngubia Kuria** (Charité, Physics and Neurosciences) | **Katrin Nikoleyczik** (University of Freiburg and Basel, Biology and Women's Studies) | **Marianne Regard** (University Clinic Zürich, Neuropsychology) | **Deboleena Roy** (Emory University, Neuroendocrinology and Molecular Biology) | **Raffaela Rumiati** (University Trento, Cognitive Neurosciences) | **Sigrid Schmitz** (University of Vienna, Biology and Gender and Science Technology Studies) | **Iris Sommer** (University Clinic Utrecht, Neurosciences/ Psychiatry) | **Catherine Vidal** (Institute Pasteur Paris, Neurobiology)

About the Gender Research Office

The Gender Research Office spans all the university departments and is part of the service department for students and teachers, with the objective of strengthening and further expanding inter- and transdisciplinary Gender Studies at the University of Vienna. Situated at the interface of teaching and research, our expertise includes scholarly organization, public relations and networking as well as support for teaching and research. See: *http://gender.univie.ac.at*

Organization Team

Grit Höppner (Department of Cultural and Social Anthropology, research associate, University of Vienna; CV: see Poster Presentations)

Katrin Lasthofer is working at the Gender Research Office at the University of Vienna. She has an educational background in Sociology and Gender Studies and graduated 2005 with a biographical research on transsexualities/transgender. Katrin is also co-editor of "Körperregime und Geschlecht", 6th volume of the book series "Gendered Subjects" with Maria Katharina Wiedlack (Studienverlag, 2011) and of "Import–Export–Transport. Queer Theory. Queer Critique and Activism in Motion" (Zaglossus, forthcoming) with Sushila Mesquita and Maria Katharina Wiedlack.

Sigrid Schmitz (Professor of Gender Studies, Department of Cultural and Social Anthropology/Scientific Head of the Gender Research Office, University of Vienna; CV: see Keynotes)

Dorith Weber, Office Management and Administration at the Gender Research Office. If she is not in the office you will find her walking in the wood with Lilli (the most famous Gender Research Dog).

Conference Board

Isabelle Dussauge (Uppsala University) | Grit Höppner (University of Vienna) | Rebecca Jordan-Young (Columbia University) | Anelis Kaiser (University of Freiburg) | Cynthia Kraus (University of Lausanne) | Katrin Lasthofer (University of Vienna) | Sigrid Schmitz (University of Vienna)

Special Thanks to

Anna Lena Berscheid | Steffi Bielowski | Claudia Binder | Julia Boschmann | Maria Clar | Andrea Felsberger | Maria Fraissler | Caroline Keller | Monika Kleedorfer | Lisa Krall | Sushila Mesquita | Christian Moser | Ulrike Tanner | Jasmin Unfried | Maria Katharina Wiedlack for “Helferleins”

Gabi Damm/Datadive for Design | Grüner Kreis for Catering

The Gender Research Office and the organizers of "Neurocultures - Neurogenderings II" are kindly supported by:

Interdisziplinäres Dialogforum der Universität Wien | ÖH Bundesvertretung | ÖH Universität Wien | Faculty of Social Sciences | Faculty of Physics

Donated items by Bäckerei Felber | Red Bull | Der Standard

With special thanks to the Cognitive Science Research Platform at the University of Vienna for co-operative support.

Programme of the Conference

Thursday, 13 September 2012

- 16.00-18.00: *Registration*

- 17.30: ***Conference Opening***
  - *Welcome Note*
    - VR Susanne Weigelin-Schwiedrzik (Rectorate, University of Vienna)
    - Christoph Dellago (Dean of the Faculty of Physics, University of Vienna)
    - Elke Mader (Vice Dean of the Faculty of Social Sciences, University of Vienna)
  - *Introductory Remarks*
    - Sigrid Schmitz (University of Vienna)
  - *Presentation of the Network NeuroGenderings*
    - Isabelle Dussauge (Uppsala University)
    - Anelis Kaiser (University of Freiburg)

- 18.00-20.00: ***Keynote***
  - ~~**Hilary Rose** (London): *Sex/Gender/Brain/Mind*~~ *Cancelled!*
  - **Cordelia Fine** (University of Melbourne): *Functional Neuroimaging Investigations of Sex Differences: Neurosexism or Neuronal Correctness?*
  - *Chair*: Sigrid Schmitz

- 20.00: *Welcome Reception*

Friday, 14 September 2012

- 09.00–11.00: ***Panel I: Empirical NeuroGenderings I***
  - Anelis Kaiser: *Ambiguity in Face Gender: an (Im)Possible Neuroexperiment*
  - Isabelle Dussauge: *Brains, Sex and Queers: an Ideal Neuroexperiment*
  - Cynthia Kraus: *Neuroimage/in/ing Sex, Gender, and Inter/Sexuality: a Thought-Experiment*
  - Lisa Scheer/Julian Anslinger: *Queer Perspectives on Neuroscience and Psychological Studies*
  - *Chair*: Hannah Fitsch

- 11.00–11.30: *Tea/Coffee Break*

- 11.30–14.00: ***Panel II: Image and Politics of the Cerebral Subject***
  - Odile Fillod: *Oxytocin as a Proxy for "Maternal Instinct": Postfeminism and the Hormones Mystique*
  - Edyta Just: *Affect. A Critical Cartography from a Feminist Perspective*
  - Svenja Matusall: *Social Neuroscience – Gendering Sociality, or Socialising Gender?*
  - Karen O'Connell: *Law, Neuroscience, and a Feminist Brain-based Legal Subject*

  - Sonia Reverter-Bañón: *From a Different Voice to a Different Brain? New Questions for Feminist Theory*
  - *Chair*: Deboleena Roy

- 14.00–15.30: *Lunch Break*

- 15.30–17.30: ***Poster Session***
  - Noa Albelda/Ina Weiner: *Early Post-Natal Immune Stimulation Leads to the Emergence of Depressive-Like Symptoms in Adulthood in Female, but not in Male Rats*
  - Julia Boschmann/Christian Moser: *Gender Effects in Brain Mapping*
  - Maria Clar: *Brain Death and Pregnancy. A Lack of Feminist Analysis*
  - Kristina Gupta: *Pedagogy and Neurogenderings: Teaching Feminism, Sexuality, and Neuroethics*
  - Grit Höppner/Sigrid Schmitz: *Pimp Your Brain! A Question of Gender? Pharmacological Neuro-Enhancement in Popular Media*
  - Caroline Keller/Lisa Krall: *Sex-Specific Intelligence in the Brain. Modern Determinism in Neuroanatomical Intelligence Research – Naturalising and Legitimation of Sexual Division of Labour*
  - Monika Kleedorfer: *The Extreme Male Brain – Autism and Gender in Pop Science Discourses*
  - Dafna Lotan: *Sex Differences in GAS-Related Neuropsychiatric Disorders*
  - Kristina Mead: *The Creation of a Feminist Cassroom and Science Lab Environment in the New Course: Sex, Gender and the Brain*
  - Saskia Nagel: *Changing Brains – Blessing and Burden of Knowing about the Brain's Alterability*
  - Diana Schellenberg: *Defensive Sexism? Neural Correlates of Exposure to Anti-Sexist, Sexist and Neutral Material* (Presentation not listed on printed programme-folder)
  - ~~Eva Maria Seidel/Claus Lamm: *Mars vs. Venus – a Social Neuroscience approach to Gender Differences in Competition*~~ *Cancelled!*
  - Ulrike Tanner/Jasmin Unfried: *Neuronal Plasticity and Gender. A Context-Analysis of Gender Constructions in the Brain-Plasticity-Concept of J. Bauer*
  - Roni Yankelevitch Yahav: *The Effects of Post-Natal Administration of the Selective Serotonin Reuptake Inhibitor Fluoxetine on Neuropsychiatric Symptoms in Rats are Modulated by Sex*
  - *Chair*: Katrin Nikoleyczik/Catherine Vidal

- 16.30–17.00:*Tea/Coffee Break*

- 18.00–20.00: ***Keynote***
  - **Daphna Joel** (Tel Aviv University): S*ex, Gender, and Brain – a Problem of Conceptualization*
  - *Chair*: Rebecca Jordan-Young

- 20:30*: Optional: Evening Program ("Heurigenbesuch"; Typical Viennese wine tavern in "Grinzing")*

Saturday, 15 September 2012

- 09.00–11.00: ***Panel III: NeuroCultures and Brain Plasticity***
  - Victoria Pitts-Taylor: *Embodied Simulation and Situated Neurons*: *Lessons from Feminist Epistemologies*
  - Rachel Weitzenkorn: *Disability and the Cerebral Subject*
  - Heidi Maibom/Robyn Bluhm: *It's All in the Brain, but not All of the Time: the Influence of Situation on Gender Differences in Neuronal Activity*
  - Catherine Vidal: *Neuro-Pedagogy against Neuro-Sexism*
  - *Chair*: Emily Ngubia Kuria

- 11.00–11.30: *Tea/Coffee Break*

- 11.30–13.30: ***Panel IV: Theory and Epistemology of NeuroGenderings***
  - Hannah Fitsch: *What Goes around comes around: Visual Knowledge in fMRI and its Implications for Research Practice*
  - Katrin Nikoleyczik: *Imaging Matters: an Agential Realist Account of Neuroscientific Knowledge Production*
  - Alexander Stingl: *Semantic Gaps, Epistemic Deficiencies, and the Cyborg Gaze: Medical Imaging and Gender from the Perspective of Postcolonial Philosophy of Science*
  - Tara Mehrabi: *Visualizing Life, Visualizing Death. A Feminist Materialist Laboratory Study of the Imaging and Bio-Chemistry of Alzheimer's Desease*
  - *Chair*: Cynthia Kraus

- 13.30-15.00: *Lunch Break*

- 15.00-17.30: ***Panel V: Empirical NeuroGenderings 2***
  - Kristina Gupta: *Transsexual Brains: More of the Same and Something New*
  - Christel Gumy: *The Gendered Tools of the Construction of the Unisex Adolescent Brain*
  - Lise Eliot: *Neuroplasticity and the Development of Sex Differences*
  - Emily Ngubia Kuria: *Experimenting with Gender. How Science Constructs Difference*
  - Deboleena Roy: *Estrogen Receptors in the Brain. A Case for Situational Neuroendocrinology*
  - *Chair*: Cordelia Fine

- 17.45–18.15: ***Round-up and Farewell***
  - Rebecca Jordan-Young/Sigrid Schmitz

Keynotes

Thursday, 13 September 2012

18.00-20.00: **Keynote: Functional Neuroimaging Investigations of Sex Differences: Neurosexism or Neuronal Correctness?**

Speaker: Cordelia Fine (University of Melbourne, AUS)

Chair: Sigrid Schmitz (University of Vienna, AUT)

The neuroscientific investigation of sex differences has an unsavoury past, in which scientific claims reinforced and legitimated gender roles in ways that were not scientifically justified. Feminist critics have recently argued that the current use of functional neuroimaging technology in sex differences research largely follows that tradition. These charges of 'neurosexism' have been countered with arguments that the research being done is informative and valuable and that the primary concern should be that insufficient attention is paid to sex influences on the brain, in part for reasons of political correctness. To illuminate the validity of these contrasting perspectives, recent fMRI investigations of sex differences and citation practices were systematically examined. In line with the notion of neurosexism, the research was found to support the influence of false-positive claims of sex differences in the brain, to enable the proliferation of untested, stereotype-consistent functional interpretations, and to pay insufficient attention to the potential malleability of sex differences in both brain and mind. It is argued that taking feminist criticisms into account would bring about substantial improvement in the quality of the science, as well as a reduction in socially harmful consequences.

Please note: Unfortunately, the keynote by Hilary Rose is cancelled!

BIOGRAPHICAL NOTES

Cordelia Fine is a Senior Research Fellow in Psychological Sciences at University of Melbourne and Associate Professor at the Centre for Ethical Leadership, Melbourne Business School. Her current research focus is on scientific and pseudo-scientific accounts of male/female difference, including ethical dimensions and the psychological effects of gender essentialist claims and beliefs. She is the author of 'Delusions of gender: How our minds, society and neurosexism create difference' (2010), and has recent and forthcoming publications in NeuroEthics and the edited collection Neurofeminism (Eds R Bluhm et al., 2012).

Sigrid Schmitz currently holds the professorship of Gender Studies at the University of Vienna. With a PhD in biology (University of Marburg/Germany) her research and teaching covers approaches in Gender & Science Technology Studies with particular focus in gender aspects in brain sciences and contemporary neurocultures, body discourses in neoliberal societal changes, and in feminist epistemologies. 1999-2009 she was university lecturer at the University of Freiburg/Germany, where she initialised and headed the Forum of Competence “Gender Studies in Computer and Natural Sciences“

[gin] together with Prof. Britta Schinzel. She contributes to the development of didactic concepts for gender studies in SET-disciplines based on approaches on gender and e-learning and was visiting professor at the University of Graz/Austria (2003), at the Humboldt University of Berlin (2008) and at the University of Oldenburg/Gemany (2009/2010).

Friday, 14 September 2012

18.00–20.00: **Keynote: Sex, Gender, and Brain – a Problem of Conceptualization**

Speaker: Daphna Joel (Tel Aviv University, ISR)

Chair: Rebecca Jordan-Young (Columbia University, USA)

When scientists and laymen think about sex differences in brain and in behavior, cognition, personality and other gender characteristics, their model is that of biological sex, that is, a categorization system in which 99% of human subjects can be categorized into one of two categories, Male or Female, and belonging to a category entails having all the characteristics of that category (Male: XY, testes, penis; Female: XX, ovaries, clitoris). That biological sex is such a powerful categorizing system relies on two characteristics. One is that there is an almost dichotomous division into a Male form and a Female form at the different levels of biological sex. The second is that there is a high degree of match between one's form at the different levels (that is, if one has the Female form at the genetic level, one is highly likely to also have the Female form at the gonadal and genitals level). Only about 1% of the population do not fit into one of the two categories of biological sex because of either having an intermediate form at one or more levels (e.g., ovotestis), or having the Male form at some levels and the Female form at other levels (as in Complete Androgen Insensitivity Syndrome). The two types of subjects are categorized as "intersex".
Using biological sex as a model to understand sex differences in other domains (e.g., brain, behavior) leads to the erroneous assumption that sex differences in these other domains obey the same rules, that is, are highly dichotomous and highly matching, and that therefore humans can be divided into Men and Women, and brains can be divided into Male Brains and Female Brains. However, current data reveal that sex differences in the brain are rarely dichotomous and are often not matching, and the same is true for sex differences in gender characteristics. Thus, decades of psychological research on sex differences revealed that in the few domains in which consistent sex-differences are found there is a considerable overlap between the distributions of the two sexes. Moreover, individuals possess a complicated array of Masculine and Feminine characteristics. Similarly, for most documented sex differences in the brain there is a considerable overlap between the distributions of the two sexes. Even more critically, there is ample evidence that environmental factors can change the form of specific brain characteristics from the "Male" form to the "Female" form or vise versa. The result of these complex interactions of sex and environment is a brain composed of a mosaic of Male and Female brain characteristics, rather than being all Male or all Female.
In summary, although 99% of humans are Males or Females, that is, have all the characteristics of that category, the division of individuals into Men and Women and of brains

into Male brains and Female brains, adds little information beyond the sex of the individual. This is because humans possess an intersex brain and an array of gender characteristics.

BIOGRAPHICAL NOTES

Daphna Joel received her Ph.D. in psychology in Tel-Aviv University, and joined the faculty of TAU in 1998. She is presently the head of the Psychobiology graduate program at the School of Psychological Sciences.
Professor Joel's research interests focus on understanding the involvement of basal ganglia-thalamocortical circuits in normal and abnormal behavior, using mainly animal models of psychopathology. More recently Professor Joel has expanded her work to research questions related to brain, sex and gender, and in particular the complex interplay between sex and environment in the development of psychopathology.
Publications (selection): Joel D. (2011) Male or female? Brains are intersex. Frontiers in Integrative Neuroscience, 5:57 doi 10.3389/fnint.2011.00057.
Joel, D. and Weiner, I. (1994) The organization of the basal ganglia-thalamocortical circuits: Open-interconnected rather than closed segregated.
Neuroscience, 63, 363-379. Flaisher-Grinberg S., Albelda N., Gitter L., Weltman K., Arad M. and Joel D. (2009) Ovarian hormones modulate 'compulsive' lever-pressing in female rats. Hormones and Behavior, 55, 356-365.

Rebecca Jordan-Young, PhD is socio-medical researcher and assistant professor of Women's, Gender, and Sexuality Studies at Barnard College, Columbia University, New York. Her research interests lie in the reciprocal relationship between science and social hierarchies (particularly in relation to gender, sexuality, class and race). As a specialist in the development of research designs, Rebecca Jordan-Young has extensive experience in the social epidemiological research on HIV/AIDS, and in advising other scientist in the selection of research methods. Her current research includes the topics of sexual orientation, gender, child abuse and "mental disability".
Publications (selection):
"Brain Storm: The flaws in the science of sex differences" (Harvard, Harvard University Press, 2010)
"Exploring the HIV Paradox: An Ethnography of Sexual Minority Women Injectors", in (with Samuel Friedman and Patricia Case) Journal of Lesbian Studies 9 (3) 2005: 103-133.

Sessions

Friday, 14 September 2012

09.00–11.00: Panel I: Empirical NeuroGenderings I

Speakers: Anelis Kaiser (University of Freiburg, GER), Isabelle Dussauge (Uppsala University, SWE), Cynthia Kraus (University of Lausanne, SUI), Lisa Scheer/Julian Anslinger (University of Graz, AUT)

Chair: Hannah Fitsch (TU Berlin, GER)

Anelis Kaiser
Ambiguity in Face Gender: an (Im)Possible Neuroexperiment

In this paper I would like to reflect on the (im)possibility of implementing an ideal feminist and queer neuroimaging experiment in humans. This is part of a broader thought experiment work with Cynthia Kraus and Isabelle Dussauge.[1]
Over two decades have passed since feminist and neurobiologist Ruth Bleier noted that there is a "...naive hope that we can find something that we can *see* and *measure* and it will explain everything" (1988, p.98). Already then we knew that we need to be cautious when *measuring* human "characteristics" or "traits" etc. of gender in neuroscientific empirical science. Today, after the deconstruction of gender (e.g. Butler 1990, 1993) we ask if measuring whatever aspects of sex, gender, sex/gender or sexuality can be "right" at all. Certainly, we cannot show in only one neuropsychological experiment that sex is gender (Butler 1990) but what else is it that a practicing feminist, queer and gender-sensitive empirical researcher can examine knowing that gender is so much complex as compared to what we read in mainstream neuropsychological research on that topic? How can a post-structuralist empirical feminism in neuroscience deal with the reflexive ambivalence between complexity and reduction?
Here, I would like to continue collecting feminist and gender-sensitive strategies for hands-on empirical neuroscience.[2] Others have already suggested possible approaches such as to multiply the differences found in the brain (Roy 2011, Joel 2011). Roy proposed to show appreciation for biological complexity by proliferating gender into "a thousand tiny sexes" (Grosz 1993, cited from Roy 2011) whereas Joel explains that what we really observe neurobiologically in the brain is a shifting, heterogeneous mosaic of sex/gender characteristics and thus an intersex brain.
Apart from examining *thousand of tiny sexes* and apart from treating the brain per se as *intersex*, I wonder if research on gender *ambiguity* could be a further (im)possible strategy for feminist and queer experimental neuroscience. What if we measure the brain's reaction to a gendered stimuli that cannot be categorized either as feminine nor as masculine? What happens to the brain then?
Face gender has been examined in neuroimaging with regard to several variables such as emotion (Phillips et al. 1997, Ishai et al. 2004), attention (Ishai et al., 2002) or

memory (Prince et al. 2009). Although many fMRI studies use human faces as stimuli for diverse tasks in looking for differences between the genders, little is known about the very process of perceiving faces as modulated by the observers' gender. Even less is known when it comes to handle gender ambiguity – for instance in the presented stimuli.

Emos

My experimental idea focuses on face perception while subjects look at gender-ambiguous faces. I am interested in detecting crucial regions in the cortical network of face perception that are involved with both ambiguous faces and gradual changes in face gender (see Freeman et al. 2009). With fMRI, I like to examine differences and similarities during the detection of "regular" (clear-cut female and male faces) versus "ambiguous" ("equivocal" female and male faces) faces. Do we activate supplementary areas to process face gender ambiguity? Will the detected regions be in the primary visual cortex rather than in frontal regions? In a second step I would like to think about extending this idea and additionally deal with ambiguous faces in terms of attractiveness and sexuality. Is there a way to think about this beyond identity-related categorization into common classifications such as "the heterosexual" or "the homosexual"?

Notes:

[1] Each of us (Kraus, Kaiser, Dussauge) will present work in progress on a common theme, that is, thought experiments inquiring into the conditions of (im)possibility for feminist/queer theory-informed empirical neuro-experiments on sex, gender, and sexuality.

[2] For the field of public health and epidemiology, an excellent good-practice guideline for researching sex/gender has been formulated (Springer et al. 2011).

References:

Bleier, R. 1988. Science and the Construction of Meanings in the Neurosciences. In *Feminism Within the Science and Healthcare Professions: Overcoming Resistance* edited by Sue V. Rosser. Pergamon Press, Oxford: 92-101.

Butler, J. 1990. *Gender Trouble: Feminism and the Subversion of Identity*. New York: Routledge.

Butler, J. 1993. *Bodies that matter: on the discursive limits of "sex"*. New York: Routledge.

Freeman JB, Rule NO, Adams RB Jr, Ambady N.

Cereb Cortex. 2009 Sep 18. [Epub ahead of print]. The Neural Basis of Categorical Face Perception: Graded Representations of Face Gender in Fusiform and Orbitofrontal Cortices

Grosz, E. 1993. A thousand tiny sexes: feminism and rhizomatics. Topoi 12: 167–179.

Ishai, A., Haxby, J.V., and Ungerleider, L.G. (2002). Visual imag-ery of famous faces: Effects of memory and attention revealed by fMRI. Neuroimage 17, 1729–1741.

Ishai, A., Pessoa, L., Bikle, P.C., and Ungerleider, L.G. (2004). Repetition suppression of faces is modulated by emotion. Proc. Natl. Acad. Sci. USA 101, 9827–9832.

Joel, D. (2011). Male or Female? Brains are Intersex. *Frontiers in Integrative Neuroscience*, *5*, 57.

Phillips, M.L, A.W.Young, C.Senior, M.Brammer, C.Andrew, A.J.Calder, E.T. Bullmore, D.I. Perrett, D. Rowland, S.C.R. Williams, J.A. Gray, A.S. David (1997). A specific neural substrate for perceiving facial expressions of dis-gust, Nature 389; 495–498.

Prince SE, Dennis NA, Cabeza R. (2009). Encoding and retrieving faces and places: distinguishing process- and stimulus-specific differences in brain activity. Neuropsychologia. 2009 Sep;47(11):2282-9.

Roy, Deboleena. 2011. Neuroethics, Gender and the Response to Difference. *Neuroethics* (Online First™, 17 June 2011).
Springer, K., Mager Stellman, J., Jordan-Young, R. (2011, online first). Beyond a catalogue of differences: A theoretical frame and good practice guidelines for researching sex/gender in human health. *Social Science & Medicine.*

Isabelle Dussauge
Brains, Sex and Queers: an Ideal Neuroexperiment

In this paper I would like to reflect on how an ideal neuroimaging experiment (fMRI) about human sexuality would be. This is a thought experiment, part of a broader thought experiment work with Cynthia Kraus and Anelis Kaiser.
By thought experiment I mean here that the experimental design is not – so far – aimed to actual implementation. Rather, I use this attempt to design an experiment as a way to discuss different levels of the queer and feminist politics of neuroscience and sexuality.
I will take into account vantage points on science from both second-wave feminist and queer scholarship. Perspectives relevant for this thought experiment include: critiques of science/ neuroscience/sex research; proposals for a renewed empirical agenda in neuroscience and sex research; and an analysis of the political economy of scientific agendas.
Tentatively, I will attempt to put into thought-practice classical sets of questions in STS (science and technology studies):
– What would we (who?) want to know? For what, to the benefit of whom? What would that knowledge be worth and in which order of value?
– About the design of the neuroimaging experiment: What assumptions about human nature, emotions, sexuality, gender and the brain in current neuroscience of sexuality would have to be replaced? Who would the participants be and what would they do? How would we (who?) produce and interpret results?
My intention is to highlight crucial levels of the normativities exerted within neurocentric understandings of emotions. This paper aims to debate not only whether everything may be known by neuroscientific means, but also what the neuro- is politically worth.

Cynthia Kraus
Neuroimage/in/ing Sex, Gender, and Inter/Sexuality: a Thought-Experiment

This paper inquires into the conceptual and practical conditions of (im-)possibility for knowing sex, gender, and inter/sexuality in the context of neuroscientific experiments, with or without neuroimagining techniques. I will center my discussion on the so-called intersexed brain, because empirical research about this particular kind of brain, but also the various, and sometimes diverging, claims made in its name — in and outside neuroscience — bring into new critical focus recurrent and persisting problems in the common or contrasting ways in which neuroscientists, feminist critics of neuroscience, and other actors, frame and seek to (re-)signify the relations between sex, gender, and sexuality, and, as an extension, between the brain, the body, and society.
I have argued elsewhere that recent neuro-genetic research about fetal brain sex development and its clinical promises to explain why transsexuals feel "trapped in the wrong body," but also to predict whether an intersex newborn will grow up feeling like a male

or a female (see Dennis 2004) confronted us "with an instructive and constructive aporia: even if brain sex facts were robust, how good would this knowledge be for making the most difficult decision of which sex to assign to a newborn with so-called ambiguous genitalia? Would brain scans be of any help to make the decision? This will have to remain a thought experiment. The reason is very simple: the machine scanner just does not work if you do not indicate the sex (either F or M) of the experimental subject.1" (Kraus 2012: 209-210).

This paper pushes the argument one step further. Suppose now we get rid of this practical requirement, and reprogram the computer program inherent to scanning, so that we don't need to indicate the sex of the tested subject as a precondition for neuroimaging experiments. With such a "sex-blind" scanner machine, we could then make the question of an individual's sex — male or female? —, and as an extension, one's gender identity (does the tested individual feel male or female?), one's gender role (does the individual act more like a man or a woman?), and one's sexual desire (is the individual attracted to men or women?) genuine research questions. Indeed, if we take the many existing studies documenting all sorts of sex/gender/sexuality-related differences in brain structures and functions seriously, then we should be able to deduce the sex of the experimental subject from neuroanatomy and/or the men or women, homosexual or heterosexual-typical manner in which the subject performed the experimental (cognitive, spatio-temporal, verbal, etc.) tasks or responded to various (visual, audible) stimuli. In principle, we should, but in practice, we can't. Why is it so? And what does this *impossibility* of knowing sex/gender/sexuality without a prior assumption on the subject's sex tell us about the conditions of *possibility* for neuroimagi/ni/ng all sorts of sex-related differences? In light of my discussion here, it will come as no surprise that while neuroimaging techniques could be enrolled to consolidate earlier neuroanatomical claims about a male brain, a female brain, a gay brain, and more recently a transsexual brain, there are no fMRI studies about the intersexed brain, precisely because the subject's sex here is, medically speaking, neither male nor female.

At the same time, I suggest, debates about the question of an intersex — but also, transsexual — brain are central to histories of the cerebral subject. Although transsexuality and intersexuality are constructed as atypical neurodevelopmental conditions, it would be an analytical mistake to view intersex and transsexual "cerebral subjects" as subaltern representatives of this master "anthropological figure of modernity" (see Vidal 2009). Indeed, they can be considered paradigmatic and applied versions of surgical neuroscience fictions such as: "If the brain of A could be transplanted into the body of B, then it is not B who would receive a new brain, but A who would gain a new body" (leading neuroscientist Michael Gazzaniga quoted in Vidal 2009: 6). According to Fernando Vidal, a cultural historian of neuroscience and one of the instigators of the international Brainhood Project, "such an operation, of course, is not (yet?) feasible" (Vidal 2002: 398, note 35). As a matter of fact, I will here argue, the brain-body relation assumed in such thought experiments involves, in practice, including in clinical practice, a cerebral subject who is typically embodied by a transsexual and intersex subject.

Most interestingly, there is also another domain of actual practices through which the intersexed brain comes to embody, this time however, the *normal* brain/cerebral subject: feminist or feminist-inspired discourses that conceive of sex-gender mosaics or intersexuality as new reality norms for brains/bodies rather than exceptions to the rule. I will here argue that as compatible as it may seem with a feminist/queer agenda, the idea that "brains are intersex" (Joel 2010) — just like the other wellliked notions of brain plas-

ticity or biological continuum/variation — raises more problems than it solves (see Kraus 2011). First of all, these notions are directly derived from (neuro-)biology and/or the sexual sciences, and, further, used an-historically, i.e. from a positivist perspective on current (neuro-)biological knowledge. Secondly, they are also used a-sociologically, obscuring the possible controversies around these notions – including in the research area(s) from which they come from –, but also the related social conflicts, or even the ways in which they have become consensual, not to say commonsensical, in certain social spaces. To conclude this paper, I will thus return to the advantages of working with what I call a dissensus framework, i.e. a critical perspective that extends the STS tradition of controversy studies, by enriching it with the study of social conflicts, as a productive way of linking neuroscience, medicine, gender, and society in order to reflect critically on existing practices and imagine new ones — in and outside neuroscience (see Kraus 2012).

Notes

[1] Anelis Kaiser (2010) drew our attention to this practical requirement in her communication to the first NeuroGenderings Conference.

References:

Dennis, Carina. 2004. Brain Development: The Most Important Sexual Organ, *Nature* 427: 390-392.

Joel, Daphna. 2011. Male or female? Brains are intersex. *Frontiers in Integrative Neuroscience* 5 (article 57): 5 pages. I thank Anelis Kaiser for sending this reference to the NG group on 22 September 2011.

Kaiser, Anelis. 2010. The Cortical Power of Gender Differences. Paper given at the Neurogenderings: Critical Studies of the Sexed Brain Conference, University of Uppsala, Sweden, 25–27 March.

Kraus, Cynthia. 2011. Critical studies of the sexed brain: a critique of what and for whom? *Neuroethics*. DOI: 10.1007/s12152-011-9107-7. Article published online first for a special issue on gender and neuroscience, Guest Editors : Isabelle Dussauge and Anelis Kaiser.

Kraus, Cynthia. 2012. Linking neuroscience, medicine, gender and society through controversy and conflict analysis: A "dissensus framework" for feminist/queer brain science studies. In Bluhm, Robyn, Anne Jacobsen, and Heidi Maibom, eds. *Neurofeminism: Issues at the Intersection of Feminist Theory and Cognitive Science* (New Directions in Philosophy and Cognitive Science). Basingstoke, UK: Palgrave Macmillan, pp. 193-215

Vidal, Fernando. 2009. Brainhood, Anthropological Figure of Modernity. *History of the Human Sciences* 22: 5–36.

Lisa Scheer/Julian Anslinger

Queer Perspectives on Neuroscience and Psychological Studies

Drawing on various discussions about knowledge production and expertise in STS (e.g. Jasanoff 2003) our paper will combine a queer perspective with the concept of Geschlechterwissen ('gender knowledge'; Wetterer 2008) in order to analyse the types of gender knowledge that find their way into psychological studies and neuroscience, and via media to public. Our paper raises the question of whether a queer perspective is useful for the analysis of scientific gender knowledge and how it could be used empirically (Hofstätter & Wöllmann 2011). Two examples of psychological studies, in this case on the relationship between 'sex' and cognitive abilities (Nyborg 2005, Weiss et al. 2003), have been analysed in the tradition of feminist science critique, complemented by a queer focus on (1) assumptions and hypotheses, (2) methodology and (3) the interpretation of results, posing the questions: What kind of theoretical approach to 'sex' and gender do the researchers follow? Are there any indications of the researchers' personal gender knowledge? What methods do they use in their studies? Which results are being emphasized and which ones are being ignored?
Finally, after criticizing the construction of a sexual binary in the respective psychological studies, the paper discusses methodological consequences as we agree with Henry Minton who states: "Queer theory has its relevance for psychological theorizing and practice because it adopts a position of inquiry that is decentered from the norm" (1997, p.349).

References:

Gildemeister, Regine & Wetterer, Angelika. 1992. Wie Geschlechter gemacht werden. Die soziale Konstruktion der Zweigeschlechtlichkeit und ihre Reifizierung in der Frauenforschung. [How genders are made. The social construction of the gender binary and ist reification in Women Studies.] In: Gudrun-Axeli Knapp & Angelika Wetterer *(eds.). Traditionen Brüche: Entwicklungen feministischer Theorie*, 201-254. Forum Frauenforschung, Kore Verlag

Hofstätter, Birgit & Wöllmann, Torsten. 2011. The Concept of 'Heteronormativity' and its Methodological Implications. In: Birgit Hofstätter & Günter Getzinger (eds.). Proceedings of the 10th Annual IAS-STS Conference on Critical Issues in Science and Technology Studies, 2nd-3rd May 2011. [CD-ROM] IFZ Eigenverlag. [Online] http://www.ifz.tugraz.at/ias/Media/Dateien/Downloads-IFZ/IAS-STS/10th-Annual-IAS-STS-Conference/Proceedings/Hofstaetter_Woellmann_Ext-Abstract [25.8.2011].

Jasanoff, Sheila. 2003. Accountability.(No?) Accounting for expertiseScience and Public Policy, volume 30, number 3, June 2003, pages 157–162

Minton, Henry L. 1997. Queer Theory: Historical Roots and Implications for Psychology. In: Theory Psychology 1997, 7, 337-353.

Nyborg, Helmuth. 2005. Sex-related differences in general intelligence g, brain size and social status. In: *Personality and Individual Differences*, 39, 497-509.

Weiss, Elisabeth M., Kemmler, Georg, Deisenhammer, Eberhard A., Fleischhacker, Wolfgang W. & Delazer, Margarete. 2003. Sex differences in cognitive functions. In: *Personality and Individual Differences*, 35, 863-875.

Wetterer, Angelika. 2008. Geschlechterwissen & soziale Praxis: Grundzüge einer wissenssoziologischen Typologie des Geschlechterwissens. [Gender knowledge & social practice: Main features of a typology of gender knowledge from the perspective of a sociology of knowledge.] In: *Geschlechterwissen und soziale Praxis. Theoretische Zugänge – empirische Erträge*. ed. ibid., 39-63. Königstein.

BIOGRAPHICAL NOTES

Julian Anslinger is a student of Psychology at the Karl-Franzens-University Graz. As a member of the work group queer science and technology studies, which is attached to the IFZ, Graz, he is interested in analyzing hegemonic and heteronormative views in science and technology. Furthermore he is interested in terms of Group-Focused Enmity. Julian Anslinger is going to write his diploma thesis on benevolent sexism.

Isabelle Dussauge, PhD is a researcher at the Centre for Gender Research, Uppsala University. Her work deals with neuroscience, medicine's visual culture, and relations between feminism and biology. Dussauge currently conducts critical work on the neurosciences of sexuality together with Ingeborg Svensson.
Publications:
With A. Kaiser: Re-Queering the Brain, in Robyn Bluhm et al. (eds), *Neurofeminism* (Palgrave Macmillan 2012)
With A. Kaiser: Guest editors of *Neuroethics, Special Issue* (2011/2013) [Sex, Lies and Evolution's Distorted Promises], *Tidsskrift for Kjønnsforskning* 4/2010:433-445 (2010)

Anelis Kaiser, Prof. Dr., is a psychologist and has been working on the topic of „brain and gender" for many years. Her empirical work is based on the application of functional magnetic resonance imaging, her conceptual work is grounded in feminist and gender theory. Thus she has a strong interdisciplinary background. Currently, Anelis Kaiser is professor at Center for Cognitive Science, University of Freiburg, Germany.
Kaiser, A., Haller, S., Schmitz, S. & Nitsch, C. (2009). On sex/gender related similarities and differences in fMRI language research. Brain Research Reviews, 61(2), 49-59.
Kaiser, A. (2012). Re-conceptualising Sex and Gender in the Human Brain. Journal of Psychology 220(2), topical "Sex and Gender Differences Revisited – New Perspectives and New Findings", 130-136.

Cynthia Kraus, philosopher, Tenured Senior Lecturer and Researcher, Institute of Social Sciences, University of Lausanne, Switzerland (http://www.unil.ch/iss), and Research Associate here: http://www.chuv.ch/iuhmsp (see *Collaborateurs/trices*). Her research areas include gender & sexuality studies, and science & medicine studies, with special interest for the intersections and tensions between scientific knowledge production, clinical practice, discourses and actions from medicalized people, as well as for the critical and normative tasks of the social sciences & humanities in societal debates.
Kraus, C. 2011. Critical studies of the sexed brain: a critique of what and for whom? *Neuroethics*. DOI: 10.1007/s12152-011-9107-7. Article published online first for a special issue on gender and neuroscience, Guest Editors: Isabelle Dussauge and Anelis Kaiser.
Kraus, C. 2012. Linking neuroscience, medicine, gender and society through controversy and conflict analysis: A "dissensus framework" for feminist/queer brain science studies. In Bluhm, Robyn, Anne Jacobsen, and Heidi Maibom, eds. *Neurofeminism: Issues at the Intersection of Feminist Theory and Cognitive Science* (New Directions in Philosophy and Cognitive Science). Basingstoke, UK: Palgrave Macmillan, pp. 193-215

Lisa Scheer has studied sociology and gender studies in Graz and Waterloo (Canada). In her dissertation which lies at the intersection of the sociology of gender, sport, and

the body she used a videographic approach to analyze mixed sporting teams. As member of the working group "Queer Science and Technology Studies" at the Interuniversitäres Forschungszentrum (IFZ) Graz she has been dealing with critical science studies for several years. Recently, the working group has presented their ideas at the 11th Annual IAS-STS Conference "Critical Issues in Science and Technology Studies".

11.30–14.00: Panel II: Image and Politics of the Cerebral Subject

Speakers: Odile Fillod (EHESS/Paris VI University, FRA), Edyta Just (University of Lodz, POL), Svenja Matusall (ETH Zurich, SUI), Karen O'Connell (University of Technology Sydney, AUS), Sonia Reverter-Bañón (Universitat Jaume I, Castellon, ESP)

Chair: Deboleena Roy (Emory University, USA)

Odile Fillod
Oxytocin as a Proxy for "Maternal Instinct": Postfeminism and the Hormones Mystique

During the 2000s, the belief that science has demonstrated the existence of a "maternal instinct" in humans has become dominant in French public space. Its spreading has been carried out mostly by women, and frequently in a post- or neo-feminist perspective: radical second wave feminism would have strayed into the denial of this (among others) biological sex difference. The main scientific argument mobilized in support of the existence of such an instinct is a purported action of endogenous oxytocin released during pregnancy, delivery or breast-feeding. By acting in mothers' brain, this rise in oxytocin level would trigger or facilitate maternal behaviors and attachment.
However, thirty years of research have not provided any conclusive evidence of such a mechanism. Animal studies cannot be extrapolated to humans, over and above the fact that they have not produced straightforward data. Extrapolating from studies showing effects of intranasal administration of oxytocin is problematic in more ways than one. Finally, the scarce research findings linking oxytocin to maternal attitudes in our species suffer from both various bias and a basic limit: reported correlations, if any, could be explained by not controlled confounding factors.
Since the scientific literature is far from being conclusive, why has this belief become hegemonic? Furthermore, the fact that mothers (as opposed to fathers) are mainly in charge of newborns and later more involved in their children's care being a major cause of persistent gender inequality, how is it that women and feminists endorse a theory which contributes to naturalize this phenomenon?
Its consistence with the feelings expressed by a number of mothers, as well as the fact that it can justify keeping traditional gender roles while advocating compensation mechanisms in favor of women, are of course part of the answer. But a number of other aspects are critical, including:

- the particular position of Sarah Blaffer Hrdy, main scientific sponsor of this theory in France, and the broad uncritical acceptance of psycho-evolutionary orthodoxy as regards behaviors which have a direct impact on reproductive success;
- a convergence between some environmentalists, midwives, and feminists demands about childbirth management;
- the massive popularization of research findings presenting oxytocin as the « love hormone »;
- a notable analogy between this theory and psychoanalysis-based ideas commonly held in France, in the way they articulate body, brain (mind), instincts (unconscious impulse), and the evolutionary legacy of human species (universal psychic structures).

Beyond these aspects, attributing such a role to oxytocin seems to be, at a deeper level, a key determinant of the success of this discourse. As I will argue, it is in line with a renewed "hormones mystique" who appear to be an ideal alternative to the 1990s "DNA mystique", at least as regards the explanation of psychological and behavioral sex differences.

Edyta Just

Affect – a Critical Cartography from a Feminist Perspective

Rosalind W. Picard in *Affective Learning – A Manifesto* (2004) briskly emphasizes that the discourse in regard to the practice of learning has been biased "towards the cognitive and relative neglect of the affective" (Picard et al 2004, 1). Recently, however, the situation has undergone certain transformation and the affect has been recognized as entirely important in the learning context. Next to a growth of the neuroscientific theories that problematize the concept of affect, the theoretical framework of affective computing, a form of Information and Communication Technology, has been substantially growing. Affective computing or emotion-oriented computing has been conceptualized as an intelligent system (a form of the artificial intelligence) that in principle can recognize, interpret and simulate human affects. More precisely it "refers to the use of ICT for the purposes of perceiving, interpreting or expressing emotions or other affective phenomena and the simulation or realization of emotional cognition" (Etica Project, Emerging Technologies Report 2010, 52). As such affective computing draws attention to emotional aspects of intelligence and constructs its conceptual framework drawing on neuroscientific theories. Importantly, since the recognition of the role of affect in the process of learning, the recent developments in affective computing strive for an implementation of this form of technology in teaching contexts. Since the progress of science has always important ethical, epistemological and ontological implications and since education plays a vital role not only in transmitting knowledge, but also in creating certain competences indispensable for the creative functioning in various sociocultural contexts, the theoretical and conceptual framework (concerning affect) adopted by neuroscience and affective computing calls for and deserves a critical evaluation. As such the main aim of the paper presentation is to draw a critical cartography of the concepts of affect proposed and adopted by neuroscience and affective computing. More particularly, the paper will discuss and focus on two specified areas of concern: 1. the existing conceptualizations and definitions of affect; 2. the extend to which gender matters (stereotypically; critically; creatively if at all) in the discourse on affect.

References:
Picard, R. W., Bender, W., Blumberg, B., Breazeal, C., Cavallo, D., Machover, T., Papert, S., Resnick, M., Roy, D., Strohecker, C. (2004), "Affective Learning - a Manifesto", *BT Technology Journal,* Vol. 22, No. 4, pp. 1-17.
Etica Project. Emerging Technologies Report, 2010.
http://ethics.ccsr.cse.dmu.ac.uk/etica/deliverables/D12Emergingtechnologiesreportfinal.pdf

Svenja Matusall
Social Neuroscience – Gendering Sociality or Socialising Gender?

Social neuroscience is a newly emerging field of research investigating neural correlations of social behaviour. With social neuroscience, sociality shifts from the external organisation of society to the internal constitution of homo sapiens sapiens. Sociality becomes a (neuro)biological entity, which requires a certain social order as its natural habitat. This paper investigates this field from a science studies and gender studies perspective, focusing on epistemology and research practice.
In the first part of the paper, social neuroscience's concept of the social brain and the prevailing notions of empathy and cooperation are scrutinised. In social neuroscience's epistemology, prosocial behaviour such as empathy, altruism or cooperation is the norm and the social brain is a gendered one. This is particularly visible in framing the pathological: Pathologies like psychopathy or autism are defined by their lack of empathy. These pathologies are much more prevalent in men than in women (autism is even considered to be the result of a hyper-male brain by some researchers). By locating abilities for empathy (or the lack thereof) in the brain and the evolutionary history, gender differences are naturalised and written into dimorphic brains. Also assumed role of social hormones such as "cuddling" oxytocin and its aggressive counterpart testosterone will be discussed under the perspective of gender studies. How does the perspective on gender relations and gender dichotomies change with sprays dispensing allegedly "female" hormones on the market and experiments linking testosterone to risky economic decisions?
In the second part of the paper, social neuroscience's research practice will be investigated. The questions tackled in this part are: does the category gender play a role in social neuroscience research? If so, how is it dealt with? And how are gender differences (if found) explained in terms of neuroscience? Are differences explained by neurological makeup, socialisiation process or environment? Last but not least it is important to ask whether the research field is dominated by one gender – it is the question about who is doing this kind of research that is contributing to changing perspectives on sociality.

Karen O'Connell
Law, Neuroscience and a Feminist Brain-based Legal Subject

As brain-based research filters into new and unexpected social and cultural domains, a neuroculture of law is imagined into being. Philosophers and scientists, as well as lawyers, have argued that neuroscience is poised to change the way that we make and apply law, specifically through a brain-based understanding of the legal subject. Whether legal subjects are lying, whether they have committed a crime, whether they can be held responsible for their actions, whether they have capacity to testify – these areas of law and many others are claimed as potentially transformed by neuroscience.
In this construct, the brain becomes a proxy for selfhood. How a brain appears to function, as measured by a range of scans and other technological interventions, stands in as a truer test of who we are than our own account, since a scanner bypasses the possibly deceptive or self-deceptive speaking agent in favour of a seemingly more reliable scientific rendering of selfhood.
For a feminist, the claims of an emerging brain-based legal subject are both worrying and promising. There are signs that the brain-based materials on which law may draw are gendered in potentially negative ways that are rendered invisible by the scientific language in which they are couched. There are also resonances between the reductionist qualities of the brain-based subject and the traditional limitations of law that feminists have been struggling against for decades. Yet there is also the promise that opening up new areas of subjectivity will allow for feminist incursions into law.
How will a brain-based subject impact on feminist efforts to make space for women's disadvantage to be recognised in law? To have women's experiences afforded legal protection, feminists need to be constantly pushing against or disrupting the boundaries of law. With examples from Australian law, specifically disability discrimination law, I argue that emerging neurotechnologies such as brain scanning and neuropharmacology, provide two essential elements that allow for feminist legal intervention: disrupting traditional definitional boundaries and making visible aspects of identity that are otherwise obscured. Using feminist philosophies of the body, disability studies and feminist legal theory, this paper argues the importance of taking a contextual approach to brain-based subjectivity in law, one that sees the brain as inseparable from its functioning within the body and embedded in overlapping biological, social and environmental systems. Such an approach makes visible the gendered underpinnings of "neurolaw" and allows for a brain-based legal subject that is open to feminist intervention.

Sonia Reverter-Bañón
From a Different Voice to a Different Brain? New Questions for Feminist Theory

The aim of this paper is to address the current debate on sexual difference that is taking place in the field of neuroscience and to analyse its implications for feminist theory and its agenda today. This reflection is centred on two issues, the first being a necessary step for the second, that is the central core of the discussion presented here:
-The first question: to what extent neuroscience research can move from reporting sex differences in brain to explaining patterns of specific behaviours that illuminate the inequalities between men and women? The plasticity of the brain will be a key aspect to understand in what sense the concept of gender remains still paramount in

understanding how we become who we are, or, otherwise, "how one becomes a woman".
-The second question I consider relevant is: how developments in neuroscience affect feminist theory and agenda? To respond this will be relevant to find out if recent research in neuroscience somehow manages to crack the eminently constructivist positioning of feminist theory, maintained from the second wave and based on the so called "sex/gender system". The most advanced neuroscience developments of the last decade has coincided with the debate started in the nineties in feminist theory asking if it is indeed possible to distinguish sex and gender. This debate, greatly influenced by the work of Judith Butler, came to doubt that the body and sex are only matter on which gender prints the social and educational patterns that finally will make gender identity. Under the proposals inspired by Butler sex itself is as discursive as gender is.
Now, both theories of second and third feminist waves are being challenged, leaving feminist theory without the crux of the matter when explaining inequality, which is social constructionism. From "the woman is not born but made" slogan that goes well with both waves would pass to the slogan "one man or woman becomes the one is born as." However, the voices claiming brain differences between the sexes, still do not explain the social inequality between men and women. This is the exploring territory for feminist theory in their interest to move forward in ways that can end the patriarchy as a system of exclusion. The controversy in feminist theory about the validity of the sex/gender system in the sense of how far the power of discourse goes loses force to locate the main feminist task in thinking critically how we can explore the plasticity of the brain to guide ourselves better towards equality. This new development I propose to feminist theory suggests that in the "era of the brain" the social and political debate is still necessary. As some critical voices claim, neuroscientist's developments do not absorb or prevent the political debate, but instead they exacerbate it. It is at this point that a strong feminist theory is still needed. May we call this new wave "neurofeminism"?

BIOGRAPHICAL NOTES

Odile Fillod holds an engineering degree from the Ecole Centrale Paris (with a concentration in Applied Mathematics), as well as a Master's degree in Cognitive Science from EHESS/Paris VI University/Ecole Polytechnique. She is currently a PhD student in Sociology at the EHESS, under the direction of Francine Muel-Dreyfus, supported by a two-year grant from the Institut Emilie du Chatelet. Her PhD thesis explores the contemporary production, popularization, and public use of scientific discourses lending further credence to the existence of natural psychological differences between the sexes.

Edyta Just holds degrees in political science (master) from Lodz University, Poland and gender studies (PhD) from Utrecht University, the Netherlands. She is Assistant Professor at the Department of Transatlantic and Media Studies and Women's Studies Centre, University of Lodz. Her field of expertise includes gender studies, philosophy, pedagogy and cultural studies of science and technology. Her recent publications are Berteke Waaldijk and Edyta Just (eds), *Tuning Educational Structures in Europe. Reference Points for the Design and Delivery of Degree Programmes in Gender Studies*, Universidad de Deusto, Spain, 2010 and Wiesław Oleksy, Edyta Just and Kaja

Zapedowska-Kling, "Gender Issues in Information and Communication Technologies (ICTs)." In: *Journal of Information, Communication and Ethics in Society*, Vol. 10, Iss:2, pp. 107-120.

Svenja Matusall is working at the science studies unit at ETH Zurich and recently finished her PhD on the emergence of social neuroscience and its notion of the social. She studied sociology with a focus on gender studies in Hannover and history of science and medicine in Durham. Her main research interest is in the relationship between science/medicine and society.
Last year, she published a short article on the relationship between gender and neuroscience: Matusall, Svenja (2011): Sex in the Brain? In: Rosa. Die Zeitschrift für Geschlechterforschung 43: pp. 4-7 (in German).

Karen O'Connell, Dr, is a Chancellor's Postdoctoral Research Fellow in the Faculty of Law, University of Technology Sydney, Australia. Karen's specialization is in emerging technologies of the body and how they are impacting on legal concepts of stigma, equality, disability and discrimination. Karen's current research is on the construction of a feminist brain-based legal subject, and discrimination against students with neurological disabilities.
See O'Connell, K. 2011, 'From Black Box to "Open" Brain: Law, Neuroimaging and Disability Discrimination' 20(4) Griffith Law Review 883-904.

Sonia Reverter-Bañón is Senior Lecturer of Philosophy in the Department of Philosophy and Sociology (Universitat Jaume I) and member of the Instituto de Estudios Feministas y de Género at the same university. She teaches Contemporary Philosophy, Feminist Theory and Political Feminist Theory. Research interests: Feminist theory, Neuroethics and Neurogenderings, Cyberfeminism, body and identity politics. Latest publications (2011): "Feminismo Institucional, ¿un feminismo líquido?" (in *Ritmos contemporáneos. Género, política y sociedad***.** Ed. Dykinson); "La deriva teórica del feminismo" (in *DAIMON. Revista Internacional de Filosofía*).

15.30–17.30: Poster Presentations

Speakers: Noa Albelda/Ina Weiner (Tel Aviv University, ISR), Julia Boschmann/Christian Moser (University of Vienna, AUT), Maria Clar (University of Vienna, AUT), Kristina Gupta (Emory University, USA), Grit Höppner / Sigrid Schmitz (University of Vienna, AUT), Caroline Keller/Lisa Krall (University of Vienna, AUT), Monika Kleedorfer (University of Vienna, AUT), Dafna Lotan/Joel Daphna (Tel Aviv University, ISR), Kristina Mead (BBRG, University of California Berkeley, USA), Saskia Nagel (University of Osnabrück, GER), Diana Schellenberg (Berlin, GER), Urike Tanner/Jasmin Unfried (University of Vienna, AUT), Roni Yankelevitch Yahav (Tel Aviv University, ISR)

Chair: Katrin Nikoleyczik (University of Hamburg), Catherine Vidal (Institut Pasteur, Paris)

Noa Albelda / Ina Weiner
Early Post-natal Immune Stimulation Leads to the Emergence of Depressive-like Symptoms in Adulthood in Female, but not in Male Rats

Major Depression (MD) is considered one of the most common psychiatric illnesses, and its prevalence is estimated at 10%. Gender differences in Major Depression are very pronounced and research has shown that women are twice as likely as men to suffer from this illness. Interestingly, this robust gender difference emerges only around puberty, and no gender differences have been found among children prior to this period. The exact etiology of MD is not fully understood. However, findings suggest that immune factors may play a role in the development and manifestation of this illness.
The aim of the present study was (1) to test whether exposure to immune stimulation in the early post-partum period will lead to the emergence of depressive-like symptoms in rats, and (2) to chart a developmental course for the appearance of these symptoms. To this aim, lactating dams were injected with the synthetic cytokine releaser polyriboinosinic–polyribocytidilic acid (poly I:C) (4mg/kg, i.p.) or Saline on post-natal day 4 (PND4). Both male and female offspring of these dams were tested on PND35 (childhood), PND56 (puberty) and PND90 (adulthood) for depressive-like symptoms as assessed by increased immobility in the Forced Swim Test.
At PND35 females as a whole spent significantly more time immobile compared to males, regardless of post-natal treatment. However, by PND56 this sex difference disappeared, and no other difference was evident between the groups. Importantly, at PND90 female offspring of Poly I:C-treated dams exhibited increased immobility compared to female offspring of saline-treated dams. No difference in immobility was evident either between male offspring of Poly I:C- or Saline-treated dams or between female off-spring of Saline-treated dams and any of the male groups.
Our findings support the notion that MD is a developmental disorder that may have its roots in the early stages of life, but whose detrimental effects manifest only at a later stage. Moreover, they suggest that sex may be an important mediator in the development of psychopathologies, such that the same insult may ultimately have a different effect on abnormal brain development depending on an individual's sex.

Julia Boschmann / Christian Moser
Gender Effects in Brain Mapping, Using the Example of Schizophrenia

Due to the fact that the human brain is considered the central control unit of the human body, numerous methods trying to reveal and depict structure and function of the human brain as such, as well as correlations between those two concepts. Brain mapping is one of the most powerful tools used to achieve said goal in Neuroscience. It has been the state-of-the-art procedure for several decades, gaining even more popularity in the age of electronic data processing.
The National Institute of Mental Health founded the so-called Human Brain Project (HBP) in 1993 with the aim of fully depicting and understanding the human brain and its functions plus, through usage of latest technology, creating a standard template for further use within the scientific community – a probabilistic reference system for brain comparisons. One of the outcomes of the HBP is the so-called disease-specific map which is used, among others, in the field of schizophrenia. Referring to the study of Katherine L. Narr et al. (2001): *Three-dimensional mapping of gyral shape and cortical surface asymmetries in schizophrenia: Gender Effects* our presentation will focus on gender effects in schizophrenia referring to brain mapping. Based on a hermeneutic text analysis we will show that this study reproduces essential assumptions of social norms referring gender, health and disease e.g. by using an unquestioned concept of the term "norm" and referencing to a specific group sample.

Maria Clar
Brain Death and Pregnancy - A Lack of Feminist Analysis

In my poster, I would like to give a short overview on the topic of brain death. First I want to discuss the definition of brain death and how it got a concept of death. This is interesting because the concept of brain death got important in the field of medicine and science in the 1950s and 1960s and caused a lot of arguments. In addition, I will mention several points of conflict, as the living appearance versus the status of corpse by law and by medical diagnosis as well as the question of defining life and death. I will present medical diagnosis and their categorizations as "primary" and "secondary" brain damages. My focus point is on treatment options, especially on the electroencephalogram (EEG) which measures the activity of the brain. Finally, I would like to open a (feminist?) discussion on brain death and pregnancy.

Kristina Gupta
Pedagogy and Neurogenderings: Teaching "Feminism, Sexuality, and Neuroethics"

The author of this poster recently co-taught an undergraduate course called "Feminism, Sexuality, and Neuroethics" to an interdisciplinary group of neuroscience and women's studies students. Students in the class learned about themes within the field of Neuroethics through critically examining historical and contemporary scientific research on sexuality and the brain. Each unit of the class focused on a different topic (i.e. sexual orientation, monogamy, sex addiction). Students read neuroscience studies on the topic

alongside reports about the study in mainstream news media outlets and feminist science studies scholarship on the topic. Students were asked to consider not only how science impacts society, but how scientific research is shaped by cultural assumptions, with the ultimate aim of discerning how we can all be responsible consumers and/or producers of neuroscientific knowledge.
This poster will present the design of the course (including syllabus), examples of the experiential-based-learning midterm project, and examples of final research papers. In addition, the poster will include the author's analysis of her experience teaching this type of course, addressing such questions as: How can we make the feminist science studies material accessible and engaging for neuroscience students? How can we make the neuroscience material accessible and engaging for women's studies students? What do we want our students to learn from these types of courses and are the intended learning outcomes the same or different for the neuroscience and women's studies students? Finally, how can we foster an atmosphere in the classroom of interdisciplinary respect and collaboration between the students and the instructors?

Grit Höppner / Sigrid Schmitz
Pimp Your Brain! A Question of Gender? Pharmacological Neuro-Enhancement in Popular Media

Self-optimizing of the brain is increasingly predicted as a strategy of success for everybody. In this presentation we pursue the question in what way the phenomenon of pharmacological neuro-enhancement is discussed in the media coverage of Germany from 2006 to 2011. Therefore we analyzed 21 articles that were published in the four German online journals Spiegel Online, Zeit Online, sueddeutsche.de and stern.de. Our interest foregrounds the question in how far this discourse refers to explicit and implicit gendered concepts, when neuro-enhancement is framed in terms of achievement-orientated society, society of success, personal responsibility, productivity and emotionality.
The analysis illustrates that the neuropharmacological paradigm of enhancement is not free of gendered implications in a society of success; instead it reproduces biologist attributions concerning women and men. Consequently, the paradigm of neuro-enhancement does not only anticipate an assimilation of gender roles but even maintains the reproduction of gendered inequality.

Caroline Keller / Lisa Krall
Sex-specific Intelligence in the Brain. Modern Determinism in Neuroanatomical Intelligence Research – Naturalising and Legitimation of Sexual Division of Labour

Current intelligence research postulates correlations between intelligence and sex differences in the neuroanatomy of the human brain. Haier et al. (2005) demonstrate that women have more white matter and men more grey matter areas correlated with intelligence. According to feminist empirism we demonstrate the existence of defaults in paradigm, materials, methods and the presentation of results that affect the presence of sex differences in this study. The points of criticism are, among others, the assumption of a

general intelligence, the use of the out-of-date intelligence-test-battery WAIS-R (1981), the exclusive analysis of group effects (e.g. differences between the groups of women and men without considering variations within a group) and the setting of the sample. We show how in terms of modern determinism the naturalising of sex-specific abilities and the legitimation of the sexual division of labour are taking place.

Monika Maria Kleedorfer
The Extreme Male Brain - Autism and Gender in Pop Science Discourses

My poster deals with Simon Baron-Cohen's concept of the "Extreme male brain" and how this concept is debated in pop science journals. I want to find out if the views and arguments of pop science discourses on gender and autism are similar to those of Baron-Cohen. Therefore I have analyzed several articles of pop science journals, summed up their main points and compared them to Nicole Karafyllis' critique on Baron-Cohen's biologist-determinist view. In conclusion, I focus on the question whether pop science discourses on autism are as determinist concerning gender as Simon Baron-Cohen's concept.

Dafna Lotan / Daphna Joel
Sex Differences in GAS-related Neuropsychiatric Disorders

Infections are important causes of pediatric neurological diseases. Group A streptococcal (GAS) infection is associated with a wide spectrum of pediatric neuropsychiatric disorders, which are mainly characterized by involuntary movements (chorea), obsessive-compulsive symptoms, tics, hyperactivity and emotional lability. A clear relationship between GAS infection and these neuropsychiatric disorders has been well documented in the medical literature, although the precise mechanism of pathogenesis is not yet clear. The leading hypothesis suggests that an antecedent GAS infection induces a cross-reactive immune response directed against neuronal brain determinants. There are sex differences in the prevalence of the different GAS-related neuropsychiatric disorders. The aim of the present study was to evaluate behavioral and biological changes following immunization of female and male rats with a crude GAS extract. Exposure to GAS increased anxiety-like behavior and impaired motor performance in male and female rats, although motor deficits were more pronounced in males. There were no sex differences in sera anti-GAS antibodies levels. These results demonstrate similarities and differences in the effects of GAS exposure on male and female rats.

Kristina Mead Vetter
The Creation of a Feminist Classroom and Science Lab Environment in the New Course: Sex, Gender and the Brain

At the liberal arts college Denison University, I created a novel course called "Sex, gender, and the brain". This course is cross-listed between Biology and Women's Studies and addresses topics such as how different or similar human males and females are biologically, the male and female brain, the origin of sex differences in the brain, and how

social status affects sex hormones which then affect the brain. We also discuss complex non-human mating systems that include other genders, the role of hermaphrodites, parthenogenesis, and asexual reproduction. This course has an associated lab. The first eight weeks consist of wet lab observations and experiments based on the brain, physiology, and gender (see Mead 2009 for some examples). The last six weeks of lab involved developing, practicing and doing a science outreach to seven elementary buildings in the Newark (OH) City School District. This outreach was done in part to celebrate Brain Awareness Week and in part because it is an important feminist tenet to put theory into practice via activism and outreach. My poster will describe three approaches that I think have been helpful in "feministing" the course and in breaking down previous neurogendered assumptions: 1) using gender as an analytical category in class and in lab (Mead 2009, 2010), 2) encouraging students to design their own investigative lab experiences, and 3) adding a service-learning component (Mead 2010). Using gender as an analytical category helps steer the class towards questions that still matter in our gender-fixated society. When students have the opportunity to create their own labs, the learning environment becomes more collaborative and inclusive, factors now widely shown to promote student engagement. Lastly, Introducing a service learning component may make the class more attractive to female students. This could be partly because many of our female students already have experience with volunteer work, so that the service learning portion of the laboratory experience seems comfortable and familiar, even if the topic is new and challenging. Furthermore, the service learning model of introductory biology allows students the opportunity to engage in problem-solving outside of the classroom, a context expected to appeal especially to college women who are not science majors (Yang, 2010). Service learning experiences are likely to give the scientific content a more meaningful and relevant context (Bhattacharyya, 2009; George & Brenner, 2010; Reynolds & Ahearn-Dodson 2010). These strategies seem to facilitate understanding of course content in all students, male and female.

Key words: collaborative, investigative, service-learning

References:

Bhattacharyya, P. 2009. Incorporating Authentic Scientific Research in an Introductory General-Education Science Course for Nonmajors. *Journal of College Science Teaching* 39 (1): 43-53.

George, L. A., & Brenner, J. 2010. Increasing scientific literacy about global climate change through a laboratory-based feminist science course. *Journal of College Science Teaching* 39 (4): 28-34.

Mead, K. S. 2009. Sex, gender, and the brain: A non-majors course linking neuroscience and women's studies. *Journal of Undergraduate Neuroscience Education* 8(1): A5-A9.

Mead, K. S. 2010. Neural networks: making connections about the brain and about college while monitoring student engagement in nearly five hundred and sixty second graders. In press at *Journal of Undergraduate Neuroscience Education.*

Reynolds, J. A. & Ahearn-Dodson J. 2010. Promoting science literacy through research service-learning—an emerging pedagogy with significant benefits for students, faculty, universities, and communities. *Journal of College Science Teaching* 39 (7): 24-29.

Yang, L-S. 2010. Toward a Deeper Understanding of Student Interest or Lack of Interest in Science. *Journal of College Science Teaching* 39 (4): 68-77.

Saskia Nagel
Changing Brains – Blessing and Burden of Knowing about the Brain's Alterability

There is much scientific and public excitement about the plasticity of the brain. Widespread importation of scientific thoughts into popular culture suggests that we discover how to determine the way our brain determines us. I scrutinize neuroreductionist tendencies that are proliferating in science and in popular media. I suggest that knowledge about plasticity that is heavily used in "train-your-brain"-discourses needs sensitive social framing considering its impact on individual and societal flourishing. The brain has the capacity to adapt to experiences with changes in neuronal activity, structure, and function by producing new cells, new connections, or modulating established connections. This plasticity is ubiquitous: Any experience in everyday life, and each purposeful intervention leave its footprint in the brain. Studies on neuronal plasticity shed light on questions ranging from effects of development, learning, pathological states to effects of psychoactive drugs and cortical stimulation. The nervous system is structured epigenetically by the organism's action in the world. Studies on gene expression show that environment and experiences influence which genes are used in protein synthesis. The evidence for modifiability is of great benefit for clinical applications, in particular rehabilitation, and fundamental for projects of self-formation. Modifiability is basic for a growing discourse of self-optimization and individualization. It is promoted that everyone can employ the alterability of the brain at each lifestage in supposedly direct ways: Train-your-brain-exercises, special nutrition, and psychopharmacology promise results in mental performance from childhood to high age. The number of readily available advices and means to change one's brain are increasing rapidly. As everyone can exert oneself to improve brain function, it might be asked from everyone to do so in a particular way. Lifelong alterability of the brain seems to come along with the demand for lifelong commitment to engage in self-optimization. This demand can impact private, working, and public life and lead to harmful pressures just as it can motivate a truly self-determined life. Talking about plasticity meets the modern societal ideals of flexibility, adaptability, and employability. There are fewer contingencies and more complexities in everyday life, and there are evermore decisions required of individuals. They can and must choose from a plethora of options – some of them existentially relevant. The increasing demand for self-actualization and self-optimization requires highly autonomous decisions. Evidence from psychological studies hints at the pressures these choices might impose on people. Society incites individual responsibility and a pursuit of self-fulfilment that can be overwhelming. A humble approach that is aware of the psychological and societal consequences is needed to benefit from neuroscientific knowledge about changing brains.

Diana Schellenberg
Defensive Sexism? Neural Correlates of Exposure to Anti-Sexist, Sexist and Neutral Material

I propose a study exploring neural correlates (speci_ cally amygdala activation and prefrontal cortex [PFC] activation) during exposure to anti-sexist, sexist and"neutral" material under consideration of participants' scores in implicit and explicit sexism inventories. Participants complete inventories assessing their feminist attitudes and implicit and explicit measures of sexism. During an fMRI assessment, participants examine stimulus

material of anti-sexist, sexist and neutral content. I hypothesize that the more sexist beliefs and attitudes participants hold, the more likely they are to react to anti-sexist content emotionally, as indicated by an increased amygdala activation. I also hypothesize that the more feminist beliefs and attitudes participants hold, the more likely they are to process anti-sexist content cognitively, as indicated by an increased PFC activation, speci_ cally in the dorsolateral PFC.

Ulrike Tanner / Jasmin Unfried
Neuronal Plasticity and Gender. A Context-Analysis of Gender Constructions in the Brain-Plasticity-Concept of J. Bauer

From a feministic point of view, the concept of neuronal plasticity bears the potential of deconstructing the biologically determined understanding of sex/gender (which usually results in assumptions about two binary sexes/genders). Joachim Bauer is an internist and a psychiatrist, who acts in the field of psychotherapeutic medicine at the University Hospital of Freiburg in Germany. He also publishes as a popular science author within the scope of brain plasticity. In our presentation we describe results of a content-analysis of his popular scientific book *Das Gedächtnis des Körpers. Wie Beziehungen und Lebensstile unsere Gene steuern (2002)*. We argue that Joachim Bauer doesn't use the feministic potential of the brain plasticity concept, but constitutes and reproduces gendered assumptions of an essential binary sex/gender order in our society.

Roni Yankelevitch Yahav / Daphna Joel
The Effects of Post-Natal Fluoxetine Administration on Behavior in Female and Male Rats

There are sex differences in the prevalence, course and response to treatment of different neuropsychiatric disorders. The present study tested the effects of neonatal exposure to selective serotonin reuptake inhibitors (SSRI's) in male and female rats. Previous studies have shown that post natal exposure to SSRIs leads in male rodents to neuropsychiatric symptoms, including, motor deficits, abnormalities in sexual and aggressive behaviors and depressive- and anxiety-like symptoms. Yet, little work has been done on the effects of such exposure on females. In the present study, male and female rats were exposed to 10 mg/kg of the SSRI fluoxetine or vehicle on postnatal days (PND) 0-6. We then tracked the development of behavioral abnormalities by assessing rats' behavior at three time points from juvenility to adulthood (PND 35, 70 and 90). Neonatal exposure to the SSRI fluoxetine led to sex-dependent effects on compulsive-, anxiety-, and depression-like behaviors, increasing the first two types of behavior in males and decreasing all three in females. Additionally, fluoxetine exposure disrupted motor performance and raised activity level in both sexes. Our findings demonstrate that the interactions of sex with other factors are complex and not linear, and therefore reinforce the recent emphasis on the importance of including males and females as subjects in biomedical research.

BIOGRAPHICAL NOTES

Noa Albelda has a BA in Psychology and Education and an MA in Psychobiology from the Tel-Aviv University. Her MA thesis explored the connection between changing levels of ovarian hormones and symptom severity in obsessive-compulsive disorder (OCD) using a rat model (Flaisher-Greenberg et al., 2009). In 2008 she started her PhD research at the psychobiology department of the Tel-Aviv University and is currently in advanced stages of her research. The PhD thesis explores the sex-dependent effects of post-natal immune stimulation on abnormal behavior and brain development of male and female rats.

Flaisher-Grinberg, S., Albelda, N., Gitter, L., Weltman, K., Arad, M., & Joel, D. (2009). Ovarian hormones modulate 'compulsive' lever-pressing in female rats. *Horm Behav, 55*(2), 356-365.

Julia Boschmann is a social worker and is studying the Master Gender Studies at the University of Vienna. Currently she is working in the field of drugs prevention as probation assistance (honorary) as well as in several projects for and with girls and women which combine social and cultural work, e.g. the project "Girls Rock Camp" (Vienna). Julia is founding member of "pink noise, Verein zur Förderung feministisch popkultureller Aktivitäten" (Vienna).

Maria Clar was born on 14th of May 1988 in Villach, Austria. She finished the college for preschool education training in Klagenfurt in 2007. In 2010 she graduated the bachelor programme in sociology at the University of Vienna with a thesis on women trade into sexual exploitation. Since 2010 she is studying the master programme in gender studies and since 2011 the master programme in sociology – both at the University of Vienna.

Kristina Gupta is a Ph.D. Candidate in the Department of Women's, Gender, and Sexuality Studies at Emory University. She is researching the intersections of feminist theory, asexuality, and scientific and medical research on sexuality. As a Neuroethics Scholar at the Emory Center for Ethics, she co-taught the course "Feminism, Sexuality, and Neuroethics." She has an article in the Journal of Medical Humanities and articles forthcoming in AJOB Neuroscience and The Journal of Lesbian Studies. She has received research grants from the Kinsey Institute and the Southeastern Women's Studies Association.

Grit Höppner is a research associate at Gender Studies and a Ph.D candidate in Sociology at the University of Vienna. Her research focus is on the sociology of the body and old age, on beauty discourses and feminist theory. Together with Sigrid Schmitz, she has recently examined the neuropharmacological paradigm of enhancement and its gendered implications in popular media: Höppner, Grit/Schmitz, Sigrid (forthcoming): Erfolgreich optimiert? Das neuropharmakologische Optimierungsparadigma und dessen geschlechtliche Implikationen. In: Gender**.** Zeitschrift für Geschlecht, Kultur und Gesellschaft, Essen.

Caroline Keller studied International Development with focus on Women's and Gender Studies in Vienna (A), Madrid (E) and Heredia/San José (CR) and is currently working

on her diploma thesis in Psychology. Her research interests include queer-feminist psychology, feminist studies of science and technology, theories of sexuality and body, transdisciplinary gender research, intersectionality, postcolonial critic and critical whiteness studies.

Monika Maria Kleedorfer was born in 1990. She studied History at the University of Vienna from 2008 to 2011. She made a Bachelor's degree in History in October 2011. Monika Kleedorfer is now studying in the Master's program of Gender Studies at the University of Vienna.

Lisa Krall is studying the Master Gender Studies in Bielefeld, Germany and is now working on her master thesis. In summer 2012 she spent a semester abroad at the University of Vienna. In 2010 she received a Bachelor in Social Work at the Niederrhein University of Applied Science. She is interested in queer-feminist and poststructural theory and critical analysis of (neuro)science from a gender perspective. Now she is participating in a mentoring program for female students and looking forward to working on a Ph.D thesis.

Dafna Lotan, Ph.D. Dissertation: *Role and mechanism of action of auto-antibodies in the induction of behavioral abnormalities in a rat model of GAS-related neuropsychiatric disorders*. Supervised by Prof. Daphna Joel, Tel-Aviv University, Israel, and Prof. Madeleine Cunningham, University of Oklahoma, USA.
Publication: Lior Brimberg, Itai Benhar, Adita Mascaro-Blanco, Kathy Alvarez, Dafna Lotan, Madeleine W. Cunningham, Daphna Joel et al. (2012). Behavioral, pharmacological, and immunological abnormalities after streptococcal exposure: A novel rat model of Sydenham chorea and related neuropsychiatric disorders. *Neuropsychopharmacology.* doi: 10.1038/npp.2012.56.

Kristina Mead Vetter, Ph.D. Biol. Sci., Stanford Univ; Assoc. Prof. Denison Univ. Research Focus: Interested in new thinking about STEM education, working on textbook connecting neuroscience and gender studies. Mead, K. S. 2011. Engaging female science students through philanthropy and social justice. FLACSO *Las Políticas de Equidad de Género en Prospectiva: Nuevos Escenarios, Actores y Articulaciones*. Pp. 374-385. Mead, K. S. 2009. Sex, Gender, and the Brain: A Non-majors Course Linking Neuroscience and Women's Studies. *J. Undergrad. Neurosci. Educ.* 8(1): A5-A9.

Christian Moser is a law major at the University of Vienna with minors in German and English as well as Cultural and Social Anthropology. As an honorary member of "Menschen für Menschen", a non-profit, non-governmental organization specialized in Social Work and Legal Assistance, he is working in the field of woman´s and third-party rights. His academic activities include a tutoring position for Practical Phonetics and Oral Communication Skills at the Department of English alongside Lacrosse Coaching at the Department of Sports.

Saskia K. Nagel, Dr., is a post-doctoral researcher at the Institute of Cognitive Science at the University of Osnabrück, Germany, and principal investigator of the interdisciplinary research group "Changing Brains" studying plasticity and the consequences of our knowledge thereof. She studied cognitive science and philosophy. In her PhD, she in-

vestigated questions in applied ethics of the neuroscience, focusing on neuro-enhancement. Saskia Nagel is active in science communication and seeks to intensify the dialogue between academia and the public, including policy.
Nagel, S.K. (2010): *Ethics and the Neurosciences. Ethical and social consequences of neuroscientific progress*. Paderborn: mentis.
Nagel, S.K. (2010): Too much of a good thing? Enhancement and the burden of self-determination. *Neuroethics* 3 (2): 109-119.

Diana Schellenberg is a prospective Ph.D. candidate from Berlin. She obtained her diploma in psychology from Freie Universität Berlin. She is a former editorial assistant of the Journal of Social and Clinical Psychology and received research training at Freie Universität's Department of Health Psychology and Western Michigan University, where she received a scholarship and attended the Anxiety Disorders and Trauma Lab. Her present research interests focus on the application of behaviorist and constructivist theories and neuroscientifc methods to feminist and queer research topics.

Ulrike Tanner is currently studying the Master Gender Studies at the University of Vienna. She finished a Bachelor in Health and Nursing Science at the Medical University of Graz in 2009. In addition, she is now working in a women's healthcare center in Vienna.

Jasmin Unfried is currently studying Gender Studies at the University of Vienna. Prior to this, she got involved with several (queer-) feministic groups in Vienna. She is interested in both: different theoretical approaches and political practices. Now, Jasmin is looking forward to her Erasmus-stay at the Charles University of Prague in autumn and winter 2012/13.

Roni Yankelevitch-Yahav received her BA in Biology and Psychology from Tel-Aviv University (TAU). After a year of studying towards her MA she transferred to the PhD accelerator program in the psychobiology department at TAU and currently is in the advanced stages of her research. Her PhD thesis explores the effects of postnatal administration of the selective serotonin reuptake inhibitor, fluoxetine on abnormal behavior and brain development in female and male rats.

Saturday, 15 September 2012

09.00–11.00: Panel III: NeuroCultures and Brain Plasticity

Speakers: Victoria Pitts-Taylor (Queens College/City University of New York, USA), Rachel Weitzenkorn (Emory University, USA), Heidi Maibom (Carleton University, USA)/Robyn Bluhm (Old Dominion University, USA), Catherine Vidal (Institut Pasteur, Paris, FRA)

Chair: Emily Ngubia Kuria (Charité University School of Medicine Berlin, GER)

Victoria Pitts-Taylor
Embodied Simulation and Situated Neurons: Lessons from Feminist Epistemologies

Mirror neuron research, which began on rhesus monkeys in the 1990s and expanded in the last decade to humans, has been widely discussed as providing evidence that the human capacity for empathy is biologically determined. Mirror neurons are understood to be neurons that fire not only when I perform an action, but also when I see you perform the same action; some of my facial expression neurons also fire in response to my seeing your facial expressions. Vittorio Gallese and other mirror neuron researchers argue that we can know other people's intentions at a preconscious level by experiencing them through the same neural mechanism as we do our own actions. In addition, through experiencing the other's emotive expressions at a neuronal level we have a preconscious, bodily experience of them. Gallese and his colleagues argue that mirror neurons suggest that theory of mind and empathy are biologically driven through 'embodied simulation,' rather than 'symbolic' and culturally learned.
The biologization of empathy and social cognition is urgently in need of feminist consideration. Not only is the research itself controversial, but different interpretations of mirror neuron research can lead to vastly different conclusions. By applying some lessons from feminist epistemologies, I describe objectionable assumptions of the dominant view of mirror neurons, embodied simulation theory. Inspired by Haraway's (1991) notion of situated knowledges as linked to embodied vision, and drawing from a range of alternative hypotheses and findings on mirror neurons in neuroscience and philosophy, I argue for a view of mirroring as a form of embodied, situated perception. This is a biocultural interpretation, where mirror neurons participate in social knowledge in a context of encultured, situated human interaction. In this rendering, mirror neurons are not determiners of, but rather participants in, empathic social experience.

Rachel Weitzenkorn
Disability and the Cerebral Subject

In the last 10 years ideas relating to the brain's ability to change itself have proliferated. The popular book published in 2007, by Norman Doidge titled, *The brain that changes Itself: Personal Stories of Triumph,* claims that Neuroplasticity holds the new key to human potential. Many other researchers have thought and written about, especially in the popular press, the brain's ability to change itself through thought. This discourse further reifies the cerebral subject without critically questioning the agency of the body and the environment. Doidge makes the claim that, "our thought can change the structure of our brains… is the most important breakthrough…in 400 years" (http://www.normandoidge.com/normandoidge/MAIN.html). This notion separates the mind/body through a notion of mind working against biology. The cerebral subject becomes solidified, devoid of a body interacting with the environment. This paper will interrogate the boundaries of what gets counted as Neuroplasticity taking stock of the foundational research that uses stories of amputees, the blind, the deaf, and victims of stroke. How have researchers made the leap from stories of the brain's ability to cope with environmental and the bodily obstacles to positing the power of the cerebral autonomous subject. The paper will look at the ways the disabled body becomes an apparatus in the conception of the cerebral subject. Karen Barad conceives of the Apparatus as the material conditions by which things come to matter. The paper will ask what are the implications of the disabled body as an apparatus in our new view of the mind's self-reflective abilities. It will use work from Feminist Materialism including Karen Barad, work by Feminist disability scholars including Rosemarie Garland -Thomson and current embodiment work in Feminist Theory. How has the coping body become a trope for the brain's autonomy?

Heidi Maibom/Robyn Bluhm
It's All in the Brain, but not All of the Time: the Influence of Situation on Gender Differences in Neuronal Activity

During the 1970s, feminist theorists began to distinguish between sex and gender, where "sex" referred to (innate) biological characteristics and "gender" to socially-acquired characteristics. In the following decade, a number of feminist critics of neuroscience argued that observed sex/gender differences in the brain could not be attributed to innate factors because of the importance of environmental influences on neural development. Any differences that did exist could be due to the acquisition of gendered characteristics as a result of socialization. Yet this argument still seemed to view brain differences as stable, even permanent, in part, perhaps, because scientists then focused on structural (anatomical) differences. Such differences would not be easily changed once established.
Currently, neuroscience is able to examine brain function and new technologies allow for a more subtle understanding of the causes and meaning of observed gender differences in the brain. Yet neuroscientists still tend to view functional differences as, for the most part, stable characteristics. In this paper, we argue that they should instead see gender as a more fluid category. We draw on work in social psychology and in feminist

theory to emphasize the influence of social situations on the expression of characteristics and behaviors that have strong gender-specific associations.
First, we will review feminist criticisms of sex difference research that emphasize the importance of gender, and the way that the sex/gender distinction influenced feminist critiques of neuroscience. We then use evidence from social psychology to support our idea that situations, more than characters, are gendered. We have two things in mind. First, repeated exposure to certain types of situations can cause dispositions to act in ways broadly aligned with gender stereotypes. Second, we argue that a lot of the gender effect is the result of being in certain situations, where once the situation is changed, the effect often disappears relatively quickly.
Some of the examples we will look at are stereotype threat and the fundamental attribution error. Social psychologists have shown that gender differences in behavior can be increased or decreased by changing the experimental situation and that consistent differences in the social environments to which women and men are exposed can influence behavioral differences, particularly when these environments reflect gendered power dynamics.
This research suggests that observed gender differences in brain function may actually reflect confounding factors, rather than gender per se. On the basis of this argument, we offer some suggestions as to how neuroscientists might begin to examine the effects of social situations on brain activity, rather than to simply regard gender as a primary explanatory variable.

Catherine Vidal
Neuro-Pedagogy against Neuro-Sexism

Despite the current evidence of brain plasticity, the idea that biology is a major determinant for sex differences in cognition and behavior, is still alive. Some scientific circles actively assist in supporting the view that the primary causes of gender differences lay in the brain, over any other type of explanation. Experimental data from brain imaging, cognitive tests or neurogenetics are often distorted to serve deterministic ideas. Neurosexism which justifies gender stereotypes based upon "brain facts" is easily picked up by the media and echoed in the general public. Neuroscientific explanations are having an increasing impact on education, occupation and other aspects of social life.
The present paper presents a critical analysis of selected examples which emphasize sex differences in three fields e.g. skills in mathematics, testosterone and financial risk-taking behavior, moral cognition. To shed light on the data and the methods used in some papers, provides efficient clues to challenge many false interpretations. An important goal is to promote effective communication to the public about controversies, and failed controversies, on sex/gender in light of the present advances in brain research. The notion of brain plasticity is a key idea for counteracting biological determinism and linking together neuroscience, gender and society for a gendered way of knowing[1].

Notes :
[1] C. Vidal. *The sexed brain : between science and ideology*. Neuroethics, 2012 (in press)

BIOGRAPHICAL NOTES

Robyn Bluhm (PhD University of Western Ontario) is Assistant Professor of Philosophy at Old Dominion University. Her research examines the relationship between ethical and epistemological questions in medicine and neuroscience. She has also recently examined the influence of gender stereotypes on fMRI research on sex/gender differences in emotion processing. She has also edited, with Anne Jaap Jacobsen and Heidi Maibom a volume on feminist analyses of neuroscience, *Neurofeminism: Issues at the Intersection of Feminist Theory and Cognitive Science* (Palgrave Macmillan 2012).

Heidi Maibom (PhD University College London, cand.phil. University of Copenhagen) is Associate Professor of Philosophy at Carleton University. She conducts research in the areas of philosophy of mind and moral psychology. She has written about folk psychology, shame, empathy, and psychopathy. Together with Anne Jaap Jacobsen and Robyn Bluhm, she has edited *Neurofeminism: Issues at the Intersection of Feminist Theory and Cognitive Science* (Palgrave Macmillan 2012), in which her paper "In a Different Voice?" appears. Here she argues against the idea that women are more empathetic than men.

Victoria Pitts-Taylor, PhD is Professor of Sociology at Queens College and the Graduate Center, City University of New York, and Director of the Center for the Study of Women and Society at the Graduate Center. She is author of two books, In the Flesh: the Cultural Politics of Body Modification (2003) and Surgery Junkies: Wellness and Pathology in Cosmetic Culture (2007), and Editor of The Cultural Encyclopedia of the Body (2008). Her current book project is The BioCultural Brain: Feminism's Neurological Body, forthcoming from Duke University Press. Her research focus is in the sociology of the body and feminist theory.

Catherine Vidal is a Neurobiologist and Research Director at the "Institut Pasteur" in Paris. She holds a PhD and a "Doctorat d'État" in neurophysiology (University of Paris). Her current research relates to the neuropathology of Creuzfeld-Jacob and prion diseases.
Catherine Vidal is involved in popularising sciences, in particular neuroscientific findings on sex/gender and their societal implications. She is the author of a large number of articles and books for the general public.
Publication: "*The sexed brain : between science and ideology*" by C. Vidal, Neuroethics 2011 (online www.springer.com/neuroethics)

Rachel Weitzenkorn just completed her first year in the Women Gender and Sexuality Studies Phd program at Emory University. Her research interests include the psychology of chronic illness and the effects imaging technology has on embodiment and medical discourse. She is working with Dr. Roy to develop a project that incorporates Feminist Science Studies to trouble notions of recovery based on the healthy autonomous individual.

11.30–13.30: Panel IV: Theory and Epistemology of NeuroGenderings

Speakers: Hannah Fitsch (TU Berlin, GER), Katrin Nikoleyczik (University of Hamburg, GER), Alexander I. Stingl (Leuphana University, GER), Tara Mehrabi (Linköping University, SWE)

Chair: Cynthia Kraus (University of Lausanne, SUI)

Hannah Fitsch
What Goes Around Comes Around: Visual Knowledge in fMRI and its Implications for Research Practice

Functional magnetic resonance imaging is a scientific process that is highly dependent on apparatuses of standardization. The measurement of the human brain needs the abstraction of complex mechanisms and operations. In fMRI the abstraction and standardization is based on intentions to install a map of brain functions. To create a map of brain functions leads to a visual knowledge mediated through normalized atlases of the brain. The aim of this method is to establish a norm brain, that helps on the one hand to map the standard modules of the brain and hence to understand how the brain processes stimuli. On the other hand, creating a norm brain apparently makes it easier to find abnormalities. But this idea of norm and abnorm, is not just a question of statistics, it is also an aesthetic question based on visual logics in the atlases of the human brain. To understand the impact of visual knowledge in fMR images, the analyzing process should be understood as a diffractive practice. The visualized and hence, materialized data is highly intertwined with the knowledge these pictures produce about our brain. This is where the ontoepistemologic concept comes into account. The development of analyzing software which can evaluate the generated data in real-time, the inter-action (or with Barad intra-action) with the data on the screen is based on the structures of the apparatus, on their ways of visual representation, and also on aesthetical sensations of the scientists. To understand the power of fMR images, one must ask: if these pictures are not the image of a working brain, then how can they make us think they are? This is what Theresa De Lauretis puts into question, when she asks: "By what process do images on the screen produce imaging on and off screen, articulate meaning and desire, for the spectators? […] And […] what historical factors intervene in imaging?" (De Lauretis 1984: 39). Brain images convey the essence of the brain and the knowledge about the brain in a seemingly direct intuitive way: everyone can see it and therefore it is true. Another reason is that the constructed fMRI pictures are linked to the traditions and conditions of analogue images and of abstractions of the living body. Even though functional images can be consulted for different reasons, they do picture specific sayabilities and visibilities and rely on historical, technical and discursive traces. Functional images do not speak for themselves, the production and interpretation of functional images follows specific discourses of aesthetics and ethics based on historical and technical possibilities. Visualizations do not just refer to the content they want to convey, but also to the ways they are displayed – and how they are displayed influences the meaning they transfer.

Katrin Nikoleyczik

Imaging Matters: an Agential Realist Account of Neuroscientific Knowledge Production

In contemporary cognitive neurosciences human behaviour and thought are studied in relation to physiological processes in the brain. Functional magnetic resonance imaging (fMRI) is a method increasingly used for this since the 1990s. Within a localisation paradigm it measures blood oxygen levels based on the assumption that these are related to cerebral activity. Functional brain imaging is based on the transformation of large and complex data sets into images. Moreover, cognitive neurosciences are a social practice and as such take place in a specific cultural and historic context (i. e. the epistemic culture of the natural sciences). Functional MRI is related to visuality; it is very successful and influences cultural beliefs about the brain, cognition, and humanness (including gender/sex).
In this paper, I explore fMRI as a material-discursive apparatus drawing on recent work of the feminist philosopher of science and theoretical physicist Karen Barad. How are the relations between materiality and visuality in fMRI as a measurement practice understandable using the theoretical framework of 'agential realism'? Offering an agential realist account of fMRI, I investigate the material-discursive conditions of neuroscientific knowledge production. Furthermore, I relate Barad's notions of 'phenomena' and 'apparatus' to questions of materiality, visuality, and scientific measurement practices in functional brain imaging.

Alexander I. Stingl

Semantic Gaps, Epistemic Deficiencies, and the Cyborg Gaze: Medical Imaging and Gender from the Perspective of Postcolonial Philosophy of Science

The popular account of the body as 'fully transparent' treats the 'technological image' as if it was an unconditional concept, however, following a Boghossian account, it is easy to see how unconditional concepts are epistemically defective. To resolve this problem a towards practical philosophy of knowledge and understanding we need to introduce a distinction between fact-meaning and meaningentitlement in epistemic practices that constitute medical images in diagnostics and research. Both, medical practice and research practice include constructions of age and gender, that inform and are informed by imaging technology. The actual social actor role of the imaging technology as a persuasive technology, therefore, lies in the (social) construction – not of facts – but of *entitlements*. Facts, as such, derive in the form of the practices we decide upon in further interaction, e.g. forms of therapy. In other words, a technology is revealed as a social actor only in the actions that follow, thereby it is constitutive of practices.
In this paper, I argue from a critically realistic perspective, to asses the potential that the concept of persuasive technology has in accounting for *epistemic responsibility* of those who are using imaging technology and images. *Mindless* acceptance and use of medical knowledge regimes and imaging technologies invigorates their persuasive power, in particular if patients, research subjects and citizens are *empowered* without *enablement*. The point is, respectively, not stop using medical images in doctor patient interactions or research practices but it must be made explicit even further than has been done so far, not just *that* we should not but also *why* we cannot take their use in diagnostic and ther-

apeutic decision-making at face value, see for example with regard to trajectories of aging or intersex discourses. Practitioners in research and healing should be mindful about technologies (medical imaging) and their integration into their practice. A first step towards the realization of such a goal is for practitioners to understand how imaging technologies actually function as social actors, and, therefore, to accept that medical images are never entirely objective or innocent, and that subjects can only be considered *empowered* if they are truly *enabled*.

Tara Mehrabi

Visualizing Life, Visualizing Death. A Feminist Materialist Laboratory Study of the Imaging and Bio-Chemistry of Alzheimer's Desease

Molecular imaging technologies have become a vital part of contemporary Alzheimer's research, filled with diagnostic and therapeutic promises. As part of an ongoing larger study, the aim here is to explore the visualization of Alzheimer's disease (AD) in biochemistry labs in which scientists try to understand the complex toxic mechanisms of miss-folding proteins, proteinacious aggregations and neural degeneration in order to be able to detect AD in early stages. The scientists hope to not merely provide molecular tools for early diagnosis, but to also be able to prevent the progress of this multi-facetted and mortal disease by inhibiting toxic proteins formation and regenerating neural connectivity via brain plasticity.
In this paper I wish to understand the bio-chemical imaging technologies as hallmark of contemporary AD detection and basic research, but also as a form of seeing and knowing (what dementia is, that is, it's biochemical ontology) that is overtly based on biochemical manipulation. In conversation with feminist materialist and posthumanist theories, such as the STS work of Karen Barad (2003; 2007), such practices are clearly recognizable as onto-epistemological by default. Molecular imaging technologies provide, simultaneously, knowledge of, and give shape to, the bio-chemistry of Alzheimer's disease. However such feminist materialist and posthumanist approaches also begs the question of the implied ethics and politics in these scientific practices that to a large degree, for instance, rely on the breeding and exploitation of transgenic lab animals, such as so called "humanized" Drosophila flies. Therefor I ask, what do these imaging technologies make visible and invisible, and by what means? What modes of "inappropriate/d otherness" (Minh-ha 1987; Haraway 1992) and significant otherness (Haraway 2003; 2008) have been assumed, established and reflected in these biochemical imaging practices? And in relation to this, what is considered viable and vital science, and what is regarded as by-products, artifacts and waste?

Notes
[1] Since Amyloid proteins develop in the brain years before the symptoms can be diagnosed. See http://www.sciencedaily.com/releases/2009/02/090210092719.htm
[2] For instance, using staining protocols that produce fluorescence images of amyloid deposits in Drosophila, such as using Congo Red, Thioflavine S and LCO. (See Berg et all. 2010, Berg 2010). See also http://www.sciencedaily.com/releases/2009/02/090210092719.htm

BIOGRAPHICAL NOTES

Hannah Fitsch just finished her PhD *Just to give you a picture. Visibilities and sayabilities in functional magnetic resonance imaging*. She is currently located at the Zentrum für Interdisziplinäre Frauen- und Geschlechterstudien, Technische Universität Berlin as a research assistant.
Publications:
Das Bild als Phänomen. Visuelle Argumentationsweisen und ihre Logiken am Beispiel von Sichtbarmachungen des AIDS-Viruses und der funktionellen MRT. Mit Lukas Engelmann. In: Lucht, P.; Schmidt, L.; Tuma, R.: Visuelles Wissen und Bilder des Sozialen: Aktuelle Entwicklungen in der visuellen Soziologie; 2012, VS-Verlag (in press).
(A)e(s)th(et)ics of brain imaging. Visibilities and sayabilities in functional magnetic resonance imaging; Neuroethics Journal 2012; Special Issue on Neuroethics and Gender (in press). DOI: 10.1007/s12152-011-9139-z

Tara Mehrabi started her PhD in September, 2011 at Tema Genus, Linköping University, Sweden. Her project is a laboratory study of Alzheimer's Disease from the feminist posthumanist perspectives. She has a master degree in STS from Linköping University. For her master thesis, she worked on co-reconstruction of Assisted Reproductive Technologies and family structures in Iran. She is interested in and engaged with feminist philosophy, STS, actor network theory, feminist materialism, feminist phenomenology, inter-sectionality, feminist posthumanism, medical anthropology.

Katrin Nikoleyczik (Dipl.-Biol.) studied Biology and Women's Studies in Marburg (Germany) and Aberdeen (UK). From 2002 until 2009 she was a research associate at the Department of Informatics and Society and worked at the Forum of Competence „Gender Research in Computer and Natural Sciences [gin]" at the University of Freiburg. Her Ph.D project is on "Biomedical Images of the Brain as Account of Neuroscientific Knowledge Production".
Schmitz, S. & Nikoleyczik, K. (2009). Transdisciplinary and Gender-Sensitive Teaching: Didactical Concepts and Technical Support, International Journal of Innovation in Education 1 (1): 81-95;
Nikoleyczik, K. (2010): „Zur Re-Produktion von Differenz in der neurowissenschaftlichen Bildgebung", in Bock von Wülfingen, B. & Frietsch, U. (Hg.): Epistemologie und Differenz: Zur Reproduktion des Wissens in den Wissenschaften, Bielefeld, transcript: 171-186.

Alexander I. Stingl, Dr. phil. Sociology (2008 FAU), Adjunct Lecturer Leuphana University; Visiting Research Fellow INTRAG European Univ. Viadrina. Specialization: Social Studies of Science&Technology, Medical Humanities, Critical Thinking.
Publications:
„Truths, Knowledge, Narratives of Selves." *The American Sociologist* Vol. 42, 2011 (forthcoming) co-author with S. Restivo, S. Weiss. *Worlds of Science Craft. New Horizons in Philosophical Science Studies.* Ashgate.

15.00–17.30: Panel V: Empirical NeuroGenderings II

Speakers: Kristina Gupta (Emory University, USA), Christel Gumy (University of Lausanne, SUI), Lise Eliot (Rosalind Franklin University, USA), Emily Ngubia Kuria (Charité University School of Medicine Berlin, GER), Deboleena Roy (Emory University, USA)

Chair: Cordelia Fine (University of Melbourne, AUS)

Kristina Gupta
Transsexual Brains: More of the Same and Something New

This article analyzes neuroscientific research on "trans." Neuroscientists have proposed a ''brain-sex'' theory for the etiology of transgender. According to this theory, hormones organize the sex/gender of the brain much later than they organize the sex/gender of the genitals, allowing for a discordance to develop between the two (Bao 2011). There have been a number of recent neuroimaging studies conducted with transgender individuals in order to test the "brain sex" hypothesis. While there has been significant feminist scholarship on neuroscientific research on sex/gender and the brain, there has not yet been serious attention paid to the neuroscientific research on trans. An exception is Riki Lane's article, "Trans as Bodily Becoming," in which she argues that this research "opens the way to understanding trans differently" (150). In this paper, I examine the neuroimaging studies that have been conducted with transgendered individuals between 2010 and 2011. I examine the assumptions that are being made by these researchers about sex, gender, and sexuality in their selection of subjects, their articulation of hypotheses, their design of neuroimaging experiments, and their interpretation of results. I argue that many of these studies remain wedded to essentialist conceptions of sex, gender, and sexuality, even though they allow for these three "traits" to vary independently from each other. I next explore the ways in which the "brain sex" hypothesis depends on and contributes to mind/body dualism. Last, I highlight a few recent studies that disrupt mind/body dualism and essentialist understandings of sex/gender/sexuality. Throughout the article, I pay careful attention to the social implications of neuroscientific research on trans for trans individuals and communities.

References:

Bao, A.et al. 2011. "Sexual Differentiation of the Human Brain: Relation to Gender Identity, Sexual Orientation and Neuropsychiatric Disorders." *Front Neuroendocrinol* 32(2): 214–226.
Lane, R. 2009. "Trans as Bodily Becoming: Rethinking the Biological as Diversity, Not Dichotomy." *Hypatia* 24(3): 136–157.
Carrillo, B. et al. 2010. "Cortical Activation During Mental Rotation in Male-to-female and Female-to-male Transsexuals Under Hormonal Treatment." *Psychoneuroendocrinology* 35(8): 1213–1222.
Garcia-Falgueras, A. et al. 2011. "Galanin Neurons in the Intermediate Nucleus (InM) of the Human Hypothalamus in Relation to Sex, Age, and Gender Identity." *J Comp Neurol* 519(15): 3061–3084.
Nawata, H. et al. 2010. "Regional Cerebral Blood Flow Changes in Female to Male Gender Identity Disorder." *Psychiatry Clin Neurosci* 64(2): 157–161.
Rametti, G. et al. 2011. "The Microstructure of White Matter in Male to Female Transsexuals Before Cross-sex Hormonal Treatment. A DTI Study." *J Psychiatr Res* 45(7): 949–954.
Savic, I. et al. 2011. "Sex Dimorphism of the Brain in Male-to-female Transsexuals." *Cerebral Cortex* 21(11): 2525–2533.

Christel Gumy
The Gendered Tools of the Construction of the Unisex Adolescent Brain

In the area of adolescence psychology, the researches aiming to elucidate the neural bases of adolescence, both from a structural and functional point of view, emerged during the 1990s and became authoritative over the last decade. It is now accepted in the field of developmental neuroscience that the brain continues to mature after the 10th year of life in a heterogeneous temporality, the prefrontal cortex reaching an adult-like similar stage of development only around the age of 25.
The use of functional imaging techniques aims at linking the structural characteristics of the adolescent brain to behaviours identified as typical of adolescence. In other words, the neuroscientists claim that the specific configuration of the adolescent brain induces a lack of emotional control promoting risky behaviours, which both allow the acquisition of independence and cause situations of danger for the young person and his/her entourage.
In the laboratory, to test the risk taking behaviours under the control of the fMRI, the researchers set up protocols to measure the emotional response in stressful or fearful situations and the way adolescents take decisions. These protocols are based on several material and conceptual elements considered as valid and no more problematized by the neuroscientist. Focusing on the experiments using pictures of facial affect as stimuli – the ones that have been extensively cited in the public sphere to explain the lack of emotional control by adolescents – I will question, in a gender perspective, the successive tools – definition of adolescence, statistics of risk taking, selection of sample, pictures of facial affect, etc. – which allow, at the end of the process, to see with the fMRI a significant difference of activation of the brain between the adolescents and the adults.
Although the adolescent brain appears at first as unisex in the sense that it qualifies individuals with regard to their age regardless of sex or gender, I am arguing that the cerebralization of adolescence not only produces differences between boys and girls – particularly by defining them with risk taking behaviours which concern differently the boys and the girls – but that gender and sex are performative in the adolescent brain's own building. Indeed, the criteria of sex and gender are present at all stages of the research activities but they seem made invisible by the category of age. My paper is addressing the question of how sex and gender can produce age, a priori unisex, and what are the scientific, politic and social issues connected to this phenomenon.

Lise Eliot
Neuroplasticity and the Development of Sex Differences

As neuroscience research rapidly progresses, it is clear that males and females show certain group-level differences in brain structure, function and neurochemistry. Unclear, however, is the etiology of such differences or their reliability across different ages and cultures. Animal and human studies both indicate that prenatal testosterone shapes some features of behavior such as auditory threshold, activity level, physical aggressiveness, and sexual preference. However, the neural bases of these and other behavioral sex differences in the human have remained elusive. This fact, together with the relatively small magnitude of most behavioral sex differences (especially compared

to the substantial variance within sex) suggest that testosterone and other strictly "biological" influences act in only a modest, biasing fashion, and are not deterministic.
Far less research has thus far explored the impact of gender enculturation on children's brain development, but it is likely to be substantial, given the strength of neural plasticity in early life and the potency of other cultural influences, such as language, on lifelong neurobehavioral function. Another factor is gender identity itself, which emerges before 3 years of age and importantly shapes children's behavioral choices and time dedicated to different tasks. Such considerations, together with findings from behavioral genetic studies, indicate that sociocultural learning makes as strong a contribution to neurobehavioral gender differences as factors like sexually-differentiated gene expression and hormone titers.
The closest researchers have come thus far to tackling the impact of gender enculturation on the brain is through studies of stereotype threat, which demonstrate that gender salience alters both neural activation and cognitive function. Future research should address the effect of early social experience and gender-differentiated play on the neural circuits that underlie later interests and abilities. Research on rodents may be instructive here: differential nurturing (licking and grooming) of male and female pups by rat dams alters the pups' gene expression in various brain regions and is also associated with effects on stress response, social play, and later parenting behavior.
In sum, this talk will use our current understanding of brain maturation and plasticity to outline a more integrative, biopsychosocial approach for further research on gender development and its neural substrates.

Emily Ngubia Kuria
Experimenting with Gender. How Science Constructs Difference

How do gendered norms negotiate with laboratory tools to reproduce difference, and how is this difference framed? Naturalizing femininity is not an automatic, self-explanatory process process. It involves experimenting, evaluating, organizing and cataloguing of information and data collected within expected paradigmatic parameters. The objective of this work is to demonstrate that there is a lot that goes into locating gender/sex1 differences in a psychological task, and that finding difference is neither obvious nor automatic in a manner that is easily derivable from observation. This paper sheds some light on what happens in a neuroscience laboratory when experimenting on gender/sex difference, elucidating the process through which experimental systems enable the appearance of gender difference and validate it within the hetero-normative norm. Taking the standpoint that gender/sex differences in cognitive performance result from a process that carefully assigns meaning to abstractions based on laboratory tools and components, this paper explores the constructedness of gender/sex differences by integrating perspectives from three disciplines namely neuroscience, science studies and gender studies.

Deboleena Roy
Estrogen Receptors in the Brain. A Case for Situational Neuroendocrinology

The steroid hormone estrogen was previously believed to indirectly regulate the reproductive axis by activating surrounding estrogen-responsive interneurons that in turn contacted gonadotropin-releasing hormone (GnRH) neurons in the preoptic area of the hypothalamus. Primarily due to the difficulty in studying GnRH neurons *in vivo*, but also partly due to a gendered perception that questioned the role of estrogen in the brain, the idea of indirect estrogen action in the regulation of the hypothalamic-pituitary-gonadal (HPG) axis was, until recently, the pervading paradigm. In many ways, this neuroscientific account fit nicely into a gendered interpretation of the roles of gonadal steroids in the mediation of sexual differentiation in the brain. During the critical period in mammals for instance, it was believed that testosterone alone was responsible for neuronal cell growth and differentiation, ultimately leading to the "masculinization" of the brain. This gendered account of the activity and influence of testosterone still persists despite the fact that studies in molecular neuroendocrinology have demonstrated that in order to have functional activity in the brain, testosterone must be converted to estrogen via the enzyme aromatase. As a result of this finding, several studies over the last decade have not only demonstrated direct regulation of hormone synthesis and gene expression in neurons by estrogen, but have also reported the existence of multiple types of estrogen receptors (nuclear as well as membrane) in these neurons. This paper follows the trail of the estrogen receptor in the brain and attempts to tell an emerging story of neuroendocrinological flux.

BIOGRAPHICAL NOTES

Lise Eliot is Associate Professor of Neuroscience at the Chicago Medical School of Rosalind Franklin University (USA). A graduate of Harvard and Columbia Universities, she did her PhD and postdoctoral research in cellular neurophysiology before turning her attention to public scholarship about brain and gender development. Her lecture will cover work addressed in two publications, the book *Pink Brain, Blue Brain* (published in German by Berlin Verlag; and in French by Robert Laffont) and a NeuroView piece in the journal *Neuron,* "The trouble with sex differences" (vol. 72, 895-898, Dec 2011).

Christel Gumy is PhD candidate at the Institute of Social Sciences, University of Lausanne. Her PhD thesis in history of science and medicine focuses on cerebral theories of adolescence, in a gender perspective.
Under review. *Les images des passions adolescentes. Des photographies d'expression faciale d'émotion aux images scans dans la construction d'un cerveau émotionnel adolescent sexué*.
2010. *Du cerveau des adolescentes et des adolescents au "cerveau adolescent". Histoire de la biologisation plastique et genrée d'une classe d'âge*. Master thesis, dir. C. Kraus (SSP/LabSo) and V. Barras (IUHMSP).

Kristina Gupta is a Ph.D. Candidate in the Department of Women's, Gender, and Sexuality Studies at Emory University. She is researching the intersections of feminist theory, asexuality, and scientific and medical research on sexuality. As a Neuroethics Schol-

ar at the Emory Center for Ethics, she co-taught the course "Feminism, Sexuality, and Neuroethics."
She has an article in the Journal of Medical Humanities and articles forthcoming in AJOB Neuroscience and The Journal of Lesbian Studies. She has received research grants from the Kinsey Institute and the Southeastern Women's Studies Association.

Emily Ngubia Kuria is a researcher at the Charité University School of Medicine Berlin and teaches at the Center for Transdisciplinary Gender Studies at the Humboldt University (Berlin). Her research examines the processes that allow for the biolog*izing* of the concept of gender through laboratory empirical work. Her work targets conceptual and methodological disciplinary boundaries between neuroscience research and gender/feminist studies.
Emily has a bachelors degree in Physics, a Master degree in Neuroscience and will soon be receiving her PhD in Neuroscience and Gender.
Recent Publications:
Kuria, E.N. (2012). Experimenting with Gender: How science constructs difference. *International Journal of Gender, Science and Technology*, 4(1), 48-61
Kuria, E.N. (2012). The Challenge of Gender research in Neuroscience In *Neuroscience and Political Theory* Volume, by F. Vander Valk. Routledge, 268-288

Deboleena Roy is Associate Professor of Women's, Gender and Sexuality Studies and Neuroscience and Behavioral Biology at Emory University. She received her Ph.D. in reproductive neuroendocrinology and molecular biology in 2001 from the Institute of Medical Science at the University of Toronto. In her doctoral work, she examined the effects of estrogen and melatonin on the gene expression and cell signaling mechanisms in gonadotropin-releasing hormone (GnRH) neurons of the hypothalamus. Her areas of interest include feminist science and technology studies, feminist theory, philosophy of science, sexuality studies, neuroethics, molecular and synthetic biology, and reproductive justice move-ments. Her research and scholarship attempts to make a shift from feminist critiques of science to the creation of feminist practices that can contribute to scientific inquiry in the lab.

Evening Programme

Thursday, 13 September 2012

What?
Reception on location at 20.00pm: Wine, Snacks & Networking

Friday, 14 September 2012

What?
Visit of a Typical Viennese Wine Tavern in Grinzing ("Heurigenbesuch")

Where?
Wine Tavern „Martin Sepp“ (address: **Cobenzlgasse 34, 1190 Vienna;** see map p. 49)

Charge?
Please buy a voucher (€ 25,-) at the **registration desk** of the conference by friday morning (round-trip-ticket, meals and drinks are included).

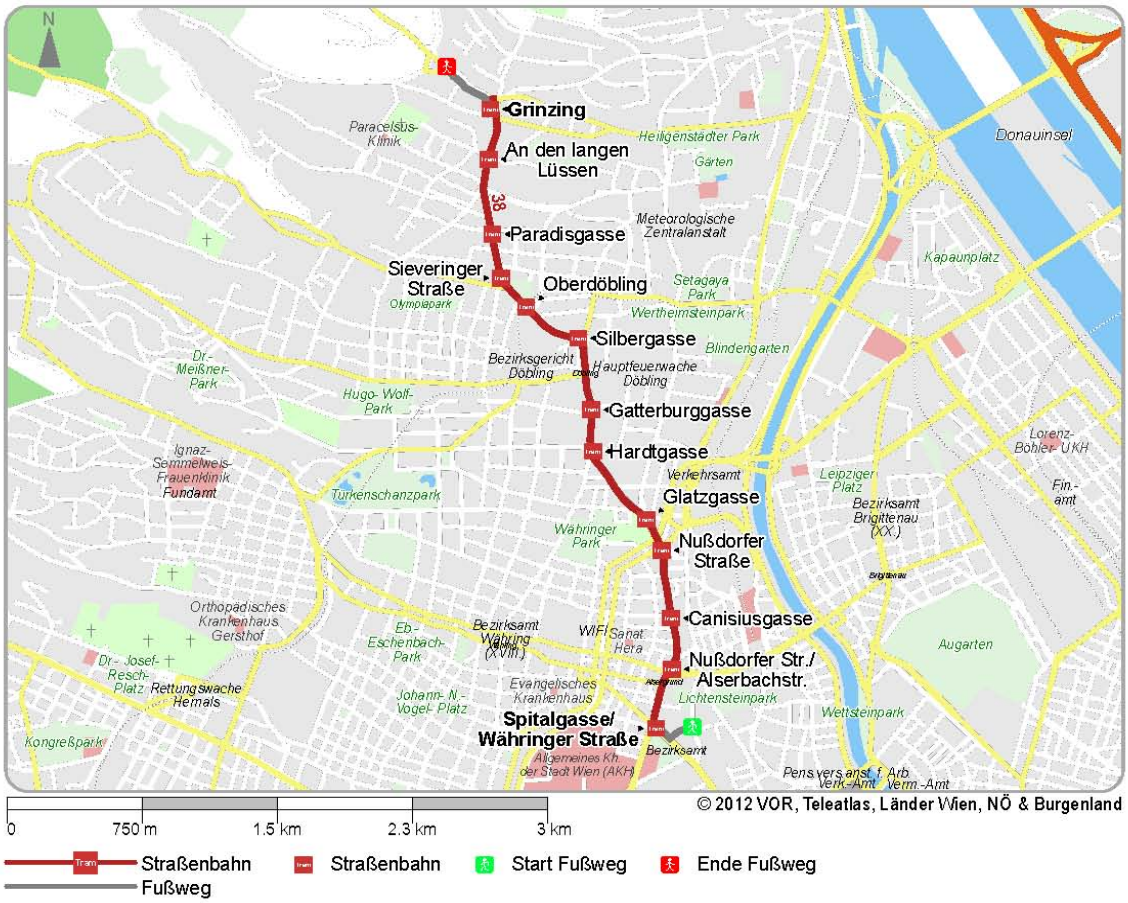
How?
Meeting Point/Departure: **20.10** at the entrance **Strudlhofgasse 4** (Grit Höppner is on location)

Departure of street car no. 38 (no change necessary):
Stop “Spitalgasse/Währinger Straße” → Stop **“**Grinzing” (5 min walk to „Martin Sepp“)
20:25, 20:35, 20:45

Departure of street car no. 38 (no change necessary):
Stop “Grinzing” → Stop “Spitalgasse/Währinger Straße”
22:02, 22:17, 22:32, 22:47, 23:02, 23:17, 23:32, 23:48

WIENER LINIEN

Weg von Wien, Boltzmanngasse nach Wien, Cobenzlgasse 34



1.1	Fußweg	Wien, Boltzmanngasse	Spitalgasse/Währinger Straße	
2.1	Straßenbahn 38	Spitalgasse/Währinger Straße	Grinzing	Grinzing
3.1	Fußweg	Grinzing	Wien, Cobenzlgasse 34	

23.08.2012 13:40:07
EFAITKernel (9.16.28.13)

Lunch & Dinner Places

(*walking distance)*

Der Wiener Deewan (pay as you wish)
Liechtensteinstrasse 10
1090 Wien
Pakistany food (Buffet)
Monday to Friday 11am–11pm

Culinarium Cooking (mid-priced)
Währinger Strasse 21
1090 Wien
Asian Food (Buffet)
Monday to Friday 11:30am-23pm

Café Berg (mid-priced to expensive)
Berggasse 8
1090 wien
daily 10am-12pm (kitchen till 11pm)

Flein (expensive)
Boltzmanngasse 2
1090 Wien
Austrian and French Food
Monday-Friday 11:30am-15:00pm +
17:30pm-23:30pm

Mittagspause (mid-priced)
Spitalgasse 25
1090 Wien
(also vegan and free of lactose and gluten)
Monday-Friday 7am-15pm

Suppen Bar (mid-priced)
Alserstraße 21/Corner Lange Gasse
1080 Wien
soup, chilli, curry (also vegan and free of lactose)
Monday - Friday 11:30am–18pm

Weltcafe (mid-priced)
Schwarzspanierstr. 15
1090 Wien
fair trade products
daily 9am-2am

Supermarkets:

Billa (average prices)
University Campus, Court 1
MO-FR 7.15am-7.30pm
SA 7.15am-18pm

Billa Box (overpriced!)
Garnisongasse 18
1090 Wien
Sandwiches and Snacks
MO-FR 7am-19pm

At Night:

brut
Karlsplatz 5
1010 Wien

Frauencafe Wien
(d.i.y. community run; cheap)
Lange Gasse 11
1080 Wien

Marea Alta
Gumpendorferstraße 28
1060 Wien

Schikaneder Kino & Bar
Margaretenstr. 24
1040 Wien

Top Kino & Café
Rahlgasse 1
1060 Wien

In the Immediate Vicinity

Strudlhofstiege:

Is an architectonially remarkable flights of steps that connects „Strudlhofgasse“ with „Liechtensteinstraße“.



Liechtensteinpark:

(Boltzmanngasse/Alserbachstraße)
…is suit for a short walk in between.

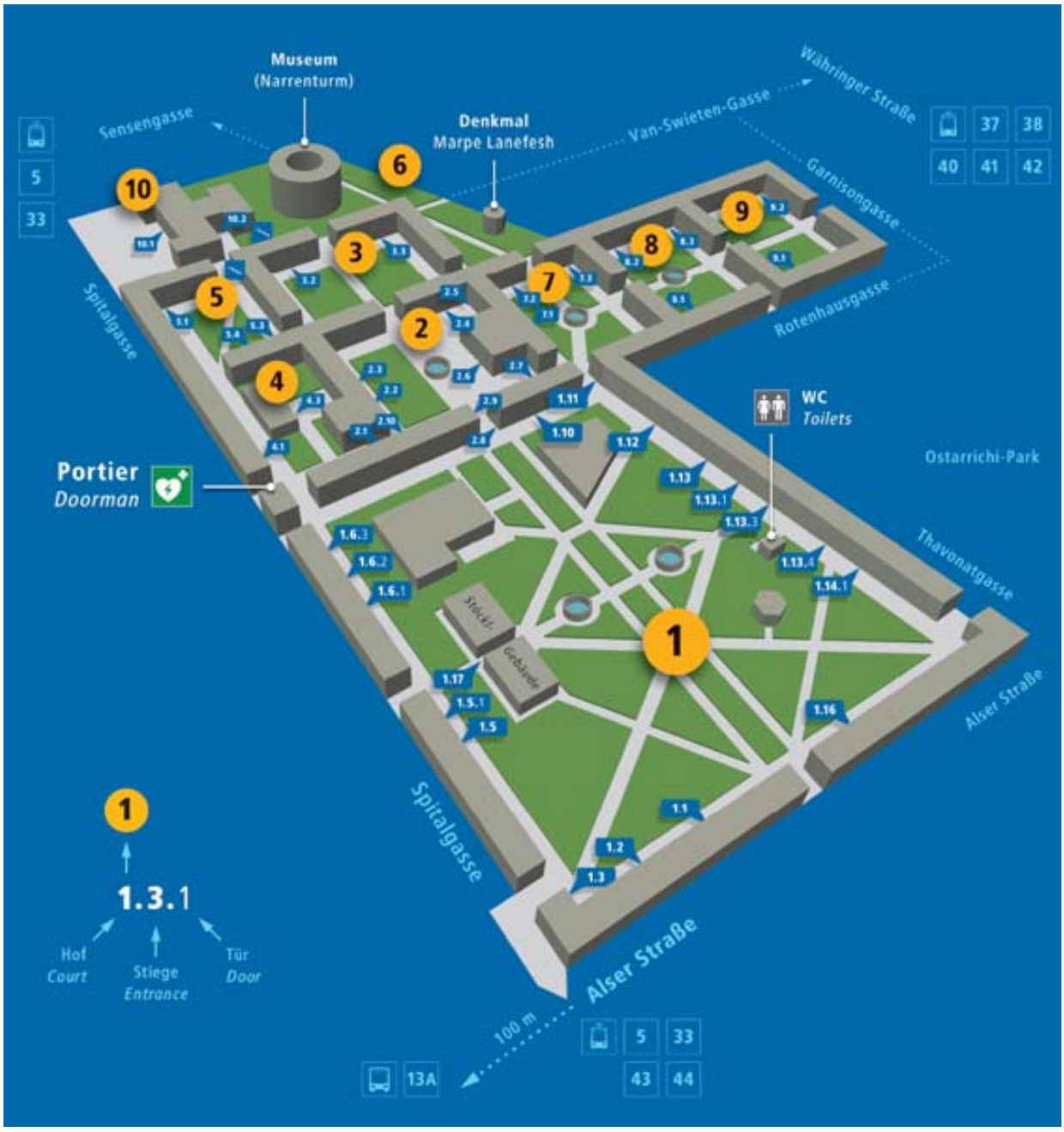


Campus of the University of Vienna:

…is suit for eating, walking, and relaxing.



Campus, Spitalgasse 2-4, 1090 Vienna



Venue

The conference "NeuroCultures - NeuroGenderings II" takes place at the University of Vienna, **Faculty of Physics, Strudlhofgasse 4/Boltzmanngasse 5, 1090 Vienna.**

All presentations including poster presentations are held at the "Lise-Meitner-Lecture Hall", 1st floor.

Getting there

- Underground line U6 (Station "Währinger Straße-Volksoper") → take tram line 40 or 41 (Stop "Spitalgasse/Währingerstraße") → 5 Minutes walk
- Underground line U2 (Station "Schottentor") → Tram 37/38/40/41/42 (Stop "Sensengasse") → 5 Minutes walk
- Call-a-Taxi: 0043-(0)1-60160 | 0043-(0)1-40100 | 0043-(0)1-31300