Impressions from the CCLM Summer School 2014
The Collegium Generale organises a series of lectures about top level research at the University of Bern. Prof. Dr. Katharina Henke introduces the CCLM on the 19th of December 2014.

Collegium Generale: Top-Level Research

Berner Schlaf-Wach Symposium, October 2014

On Thursday, 23rd of October, and Friday, 24th of October, the 18th Berner Schlaf-Wach Symposium takes place at the Inselspital in Bern. The first day covers clinical topics including aspects from chronobiology, innovative therapies obstructive sleep apnea, paediatric insomnia, and the science of dreaming. The second day has a more experimental orientation as this is the day the Centre for Experimental Neurology (Zentrum für Experimentelle Neurologie, ZEN) is formally inaugurated. The centre hosts a state of the art laboratory for fundamental research in the area of sleep and wakefulness, including optogenetic methods.

New CCLM Members

Wilhelm Klatt, PhD student in Janek Lobmaier’s team.

Ferenc Kemény, postdoc in Beat Meier’s team.

Julia Schneider, PhD student in Trix Cacchione’s team

Nicole Oberer, PhD student in Claudia Roeber’s team.

Niamh Oeri, PhD student in Claudia Roeber’s team

Denise De Jong, research assistant in René Müri’s team.

Congratulations to...

Beat Meier, whose request for a SCIEX fellowship for Ferenc Kemény was granted for the project “Multi-modal sequences in task sequence learning”.

Ines Mürner-Lavanchy, for her doctoral promotion.

Media Response

UniAktuell reports on Ines Mürner-Lavanchy and her research as a part of a series about young researchers leading up to the „Nacht der Forschung“.
If you would like to take advantage of this platform and are interested in organising your own symposium in 2015 please contact Simon Ruch. Note that also guest speakers are highly welcome!

New Research Group: Daria Knoch and Social Neuroscience

Daria Knoch is a professor for social psychology and social neuroscience. Her research team investigates social actions and reactions using cognitive and neuroscientific methods. Daria Knoch is a pioneer in the area of social neuroscience and regularly publishes innovative research in high-impact journals such as Nature Neuroscience, Science, and PNAS. The Department of Social Psychology and Social Neuroscience stands for modern social psychology that includes biological foundations for social experiences and actions. Prof. Knoch’s team complements the CCLM in research as well as in teaching in areas such as cognition, learning, and memory by providing a social context.

Current areas of research are the neurobiological foundations of learning about an interaction partner’s trustworthiness and how the volume in certain brain areas crucial to social cognition affects social interactions. A further area of interest is how working memory training affects social interactions.

We cordially welcome Daria Knoch and her group in the CCLM!

Together Against Forgetfulness: New Offer by the Service Centre

CCLM’S Service Centre now offers cognitive trainings tailored to the demands of elderly people. The first training took place in September and was already fully booked. For groups of no more than 20 persons the course provides knowledge on what working memory is, how it changes when you get older and how you can preserve your cognitive functions. In addition there are opportunities to exchange experiences with other participants and to train with the programme „BrainTwister“.

The next courses take place in January and March 2015 and there are still open slots. For attendees of the University for Seniors there is a reduction in price. If you are interested, feel free to write an e-mail to dlz-info@psy.unibe.ch.
CCLM Summer School - A Retrospection

During the warmest and sunniest week of our summer, from the 10th to the 14th July 2014, the first Summer School organised by the Swiss Graduate School for Cognition, Learning, and Memory took place in Weggis at the shore of lake Lucerne. The topic was „Neuroanatomy and Neurophysiology of Cognition, Learning, and Memory.“ 26 PhD students from the CCLM graduate school and from abroad discussed memory, methods, and the beauty of the Swiss Alps. Three speakers (introduced below) held lectures about their own field of research.

Prof. Bradley Postle is a professor at the University of Wisconsin-Madison. He held a keynote presentation about the neuroanatomy and neurophysiology of human working memory, individual differences in brain activation during working memory tasks and age-related differences, and the neurophysiology and the role of control of interference during working memory tasks.

Prof. Silvia Bunge is a professor at the University of California at Berkely and held a keynote presentation about the neuroanatomy and neurophysiology of human brain development and experience-based brain plasticity. Her areas of research are neural mechanisms, development, and plasticity of higher cognitive functions in humans.

Prof. Nikolai Axmacher is a professor at the the University of Bonn and held a keynote presentation about the neuroanatomy and neurophysiology of how information is encoded, stored, and retrieved in human memory, as well as about the social and emotional factors of memory formation.

Anonymous Feedback from Participants

„What I liked was the opportunity to get to know the other PhD students, the opportunity to meet these lecturers, and the invaluable exchange of ideas for my project that this gave me. I am really happy that I got the chance to participate.“

„I liked the whole atmoshpere. The location was spectacular, the group was very open and welcoming, the professors were sympathetic and sociable. Scientific exchange was fostered from all sides and easily possible. The second session where professors talked about their current research was awesome. More please!“

„I wish to emphasize that I hardly ever encountered a group that was so open, interested, and friendly and helpful to each other. I am convinced that this is largely due to the organizers: They did an exceptional job at organizing the Summer School in a way that reduced the usual wariness that may occur when meeting total strangers. The structure gave us plenty of opportunities for interesting and stimulating discussions with lecturers as well as the other PhD students. I always felt welcome and respected (which, unfortunately, is not as self-evident as one may assume). Also, I believe that the organizers were great examples to everyone in how they interacted with each other, the keynote lecturers and us, so we quickly adapted to the low-threshold approachability of everyone."

Recent publications


Opinions From Our Own CCLM-Graduate Students

„A highlight? The whole week was a highlight!“

It was great! The size of the group was ideal as it was quite small which lead to a sense of community rather quickly and you started talking to each other easily. Given the small group size it was also easy talking to the professors informally, which lead to completely different conversations and to different approaches for viewing the own area of scientific interest. There were many students with completely different back grounds, some even from other countries, and it was interesting to see that there are so many ways of approaching memory-based research. Meeting other PhD students was also helpful, to see that we all share the same problems and that frustration is just a part of the process was an invaluable experience. It is hard to name just one favourite thing about the week. The programme granted the perfect mixture of learning and leisure. The whole week was planned carefully and with a great attention for details – you clearly noticed that a lot of time and effort were spent planning and organising that week.

(Else Schneider from Katrin Henke’s group is interested in the implicit processing of time and space and is currently planning a study in which animated horses play a pivotal role.)

„Talking about science while watching the sun set“

It was a nice week with a dense programme, but not so dense to make you feel stressed out. It was an excellent mixture of opportunities for learning and exchanging views and knowledge but also of opportunities for having fun. This mixture served as an ideal platform to motivate oneself and to develop new perspectives. The week itself was perfect – the organisation was great, the infrastructure was great, and the invited speakers were great as well. The mixture of the different people from different countries with different backgrounds gave impulses that were not directly beneficial for my thesis but I gained new insights into methods, problems in science, problems occurring during your time as a doctoral student. During the week I also talked to the professors – that was incredibly nice: Those “moments between”, during dinner, swimming, or hiking where you could talk rather informally to the professors about methods, procedures, and ideas. I gained a boost in motivation and new insights. It also taught me to have a look at my topic from a different point of view in order to gain new insights.

(Emanuel Feurer from Claudia Roebers’ group writes his thesis about how children’s perception of their own cognitive abilities changes as they make the transition from kindergarten to school and is presently occupied with analysing “big data”)

Announcement Summer School 2015

The Summer School 2015 takes place from the 23rd to the 27th of June, again in Weggis. The topic will be a continuation of this and next term’s topic in the CCLM Graduate School: „Cognition, Learning, and Memory: Comparative and Evolutionary Perspectives.“

Recent Publications


Focus on the Necessity of the Hippocampus for Unconscious Memories

Textbooks divide between human memory systems based on consciousness. Hippocampus is thought to support only conscious encoding, while neocortex supports both conscious and unconscious encoding. We tested whether processing modes, not consciousness, divide between memory systems in three neuroimaging experiments with amnesic patients and healthy controls. Examined processing modes were single item versus relational encoding with only relational encoding hypothesized to depend on hippocampus. Participants encoded and later retrieved either single words or new relations between words. Consciousness of encoding was excluded by subliminal (invisible) word presentation. Amnesic patients and controls performed equally well on the single item task activating prefrontal cortex. But only the controls succeeded on the relational task activating the hippocampus, while amnesic patients failed as a group. Hence, unconscious relational encoding, but not unconscious single item encoding, depended on hippocampus. Yet, three patients performed normally on unconscious relational encoding in spite of amnesia capitalizing on spared hippocampal tissue and connections to language cortex. This pattern of results suggests that processing modes divide between memory systems, while consciousness divides between levels of function within a memory system. The latter finding supports the more general notion that evolution brought forth brain regions that are functionally specialised for certain tasks. These „expert-areas“ retain their expertise on each level of function from unconscious to conscious. The spread and coherence of activity within a functionally specialised area determines the degree of awareness that we are having about the mental product of this processing.

Author Information

Katharina Henke, (Department of Psychology) investigates learning, memory, and consciousness. Special interest is the hippocampus.

René Müri, (Department of Neurology) examines relationships between attention, visual and perceptive deficits, working memory and other forms of memory and language functions.

Reference and Figure:

Upper panel: Subliminally presented word pairs activate the hippocampus. Lower panel: Hippocampus is again active when synonyms to unconsciously encoded words were retrieved.

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