

**SIMON RUCH, Dr. phil.****Curriculum Vitae**

E-Mail: simon.ruch@psy.unibe.ch

Phone: +41 (0) 31 631 37 29

Address: University of Bern, Institute of Psychology, Fabrikstrasse 8, CH-3012 Bern

**EDUCATION**

---

- 2010 - 2015      **Ph.D., *summa cum laude*, at the University of Bern, Switzerland.**  
**Division of Experimental Psychology and Neuropsychology.**  
 Thesis: *"Unconscious memory formation: learning during sleep, learning from subliminal messages"*
- 2004 -2010      **Lic. phil. (Master's degree) in Psychology, University of Bern, Switzerland**  
 Major: Clinical Psychology & Psychotherapy  
 Minor 1: Neuropsychology, Minor 2: Psychopathology
- 2003              Two semesters in computer science and mathematics, University of Bern

**ACADEMIC POSITIONS**

---

- Since May 2018      Postdoctoral researcher in the project "Sleep and Brain" (PI: Prof. Dr. Katharina Henke) of the Interfaculty Research Cooperation (IRC) "Decoding Sleep: From Neurons to Health & Mind" at the University of Bern (Switzerland).
- March 2015  
– April 2018      Postdoctoral researcher in the group of Prof. Dr. Katharina Henke, Professor of Experimental Psychology and Neuropsychology, University of Bern (Switzerland).
- November 2015  
– January 2016      Postdoctoral research assistant at the Institute of Work and Organizational Psychology, University of Neuchâtel, Switzerland (temporary assignment within the alternative civilian service).
- Mai 2014  
– October 2015      Assistant to the director of the Center for Cognition, Learning and Memory (CCLM), University of Bern, Switzerland.
- 2010 – March 2015      Research assistant and Ph.D. student in the group of Prof. Dr. Katharina Henke, Professor of Experimental Psychology and Neuropsychology, University of Bern, Switzerland.
- 2008 – 2010      Undergraduate research assistant in the group of Prof. Dr. Carolyn C. Morf, associate professor at the Department of Psychology, University of Bern, Switzerland.

**HONORS**

---

- 2015      Outstanding dissertation award, Faculty of Human Sciences, University of Bern, Switzerland

**ADMINISTRATIVE EXPERIENCE**

---

Organizer of an international scientific conference held in Spiez (CH): the *swiss memory workshop* 2015. The congress brought experts in the neurobiological and psychological study of memory together to discuss their latest research and theoretical advances.

Quality auditor and co-author of the audit reports of the Center for Cognition, Learning and Memory (CCLM), a strategic research center of the University of Bern, Switzerland.

Communication officer at the Center for Cognition, Learning and Memory (CCLM).

Accountant and research fund manager at the Center for Cognition, Learning and Memory (CCLM).

**EDITORIAL ACTIVITIES**

---

Peer reviewer for *Brain and Language*

**PUBLICATIONS**

---

- Ruch, S., Herbert, E., & Henke, K. (2017). Subliminally and Supraliminally Acquired Long-Term Memories Jointly Bias Delayed Decisions. *Frontiers in Psychology*, 8, 1542. <https://doi.org/10.3389/fpsyg.2017.01542>
- Maridor, M., Ruch, S., Bangerter, A., Emery, V. (2017). Skepticism towards emerging infectious diseases and influenza vaccination intentions in nurses. *Journal of Health Communication*. <http://dx.doi.org/10.1080/10810730.2017.1296509>
- Ruch, S., Züst, M. A., & Henke, K. (2016). Subliminal messages exert long-term effects on decision-making. *Neuroscience of Consciousness*, 1, 1-9. <https://doi.org/10.1093/nc/niw013>
- Züst, M. A., Colella, P., Reber, T. P., Vuilleumier, P., Hauf, M., Ruch, S., & Henke, K. (2015). Hippocampus is place of interaction between unconscious and conscious memories. *PLoS ONE*, 10(3), e0122459. <http://doi.org/10.1371/journal.pone.0122459>
- Ruch, S., Koenig, T., Mathis, J., Roth, C., & Henke, K. (2014). Word encoding during sleep is suggested by correlations between word-evoked up-states and post-sleep semantic priming. *Frontiers in Psychology*, 5, 1319. <http://dx.doi.org/10.3389/fpsyg.2014.01319>
- Ruch, S., Markes, O., Duss, S. B., Oppliger, D., Reber, T. P., Koenig, T., Mathis, J., et al. (2012). Sleep stage II contributes to the consolidation of declarative memories. *Neuropsychologia*, 50, 2389–2396. <http://dx.doi.org/10.1016/j.neuropsychologia.2012.06.008>

**TALKS & POSTER PRESENTATIONS**

---

- Ruch, S., Züst, M. A., Wiest, R., Henke, K. (2017). Vocabulary learning during deep sleep. Talk at the 3<sup>rd</sup> Alpine Chapter Symposium of the Organisation for Human Brain Mapping (OHBM), in Bern, Switzerland.
- Ruch, S., Zäske, R., Züst, M. A., Schweinberger, S. R., Henke, K. (2017). *Implicit memory for content and speaker of messages heard during slow-wave sleep*. Poster at the 2017 Annual Meeting for the Cognitive Neuroscience Society (CNS). San Francisco, California.
- Ruch, S., Züst, M. A., Wiest, R., Henke, K. (2017). Vocabulary learning during slow-wave sleep. Poster at the 5<sup>th</sup> Winter Research Meeting of the Bern Network for Epilepsy, Sleep, and Consciousness (BENESCO), in Wengen, Switzerland.
- Ruch, S., Zäske, R., Züst, M. A., Schweinberger, S. R., Henke, K. (2016). *Implicit memory for the content but not the speaker of sleep-played messages*. Poster at the 6th International Conference on Memory (ICOM-6). Budapest, Hungary.
- Ruch, S., Zäske, R., Züst, A. M., Schweinberger, S. R., Henke, K. (2016). *Implicit memory for the content but not the speaker of sleep-played messages*. Talk at the 11<sup>th</sup> annual meeting of the Clinical Neuroscience Bern, in Bern, Switzerland.
- Ruch, S., Bangerter, A., Maridor, M., Emery, V. (2016). *Skepticism towards Emerging Infectious Diseases: Scale Validation*. Invited talk at the Institute of work and organizational psychology, University of Neuchâtel, Switzerland
- Ruch, S., Koenig, T., Mathis, J., Roth, C., & Henke, K. (2014). *Learning words during sleep*. Talk at the 2014 Annual Meeting of the Society for Neuroscience, Washington, DC.
- Ruch, S. (2014). *Word encoding during sleep*. Talk at the joint meeting of the Swiss Society for Neuroscience and the Clinical Neuroscience Bern, in Bern, Switzerland.
- Ruch, S. (2013). *Word encoding during sleep*. Talk at the sleep research meeting of the Bern Network for Epilepsy, Sleep, and Consciousness (BENESCO), in Adelboden, Switzerland.
- Ruch, S. (2012). *How do adult brains make memories?* Talk at the symposium of the Center for Cognition, Learning and Memory (CCLM) at the 8<sup>th</sup> annual meeting of the Clinical Neuroscience Bern, in Bern, Switzerland.
- Ruch, S., Markes, O., Duss, S. B., Oppliger, D., Reber, T. P., Koenig, T., Mathis, J., Roth, C., & Henke, K. (2012). *The contribution of sleep stage II to the consolidation of episodic memories*. Poster presented at the 2012 Annual Meeting of the Cognitive Neuroscience Society, Chicago, IL.
- Ruch, S., Markes, O., Duss, S. B., Oppliger, D., Reber, T. P., Koenig, T., Mathis, J., Roth, C., & Henke, K. (2011). *The contribution of sleep stage II to the consolidation of episodic memories*. Talk at the sleep workshop at the 7<sup>th</sup> annual meeting of the Clinical Neuroscience Bern, in Bern, Switzerland.

## RESEARCH INTERESTS

---

Cognitive neuroscience, with a special focus on memory, sleep, and consciousness:

- Neural correlates of human episodic memory. *How do we form, store, and retrieve memories?*
- The cognitive and biological functions of sleep: memory consolidation, memory formation, synaptic down-scaling during sleep. *Why do we sleep? Can we learn during sleep?*
- Neural correlates of consciousness: *How is conscious mentation generated in the brain? Why and how did consciousness evolve? What is the function of consciousness?*
- The functional abilities of the human unconscious: subliminal perception, cognition during sleep, non-conscious decision-making. *How are our decisions affected by unconscious mechanisms?*
- Cognitive enhancement, neuro-stimulation. *Can neuro-stimulation (e.g. in the treatment of epilepsy) be used to enhance cognitive abilities?*

## CURRENT RESEARCH PROJECTS

---

- EEG and fMRI study investigating vocabulary learning during deep sleep.
- Intracranial EEG study investigating the memory function of human hippocampal sharp-wave ripples.
- Closed-loop EEG study investigating the role of slow-wave peaks in memory formation and consolidation during NREM sleep.
- A combined EEG-fMRI study investigating hippocampal involvement in learning during NREM sleep.
- EEG-study investigating voice learning during NREM sleep.
- Behavioral and fMRI study investigating unconscious (subliminal) encoding of movies.
- EEG-study investigating sleep spindles as potential predictors for schizotypal personality.
- Behavioral study that contrasts the capacity limits of conscious and unconscious information integration

## TEACHING EXPERIENCE

---

Teaching assistant for undergraduate courses:

- *"Limits of Unconscious Information Processing"* (2010)
- *"Neuronal Synchronicity"* (2011)
- *"Familiarity and Priming"* (2011)
- *"Cognitive Functions of Sleep"* (2013)
- *"Analysis of EEG and fMRI Data using Matlab®"* (2016, 2017)
- *"Theories of Consciousness"* (2017)
- *"Learning and Remembering"* (2018)

Single lectures on *"The Neurobiology of Sleep"* and *"The Recuperative Function of Sleep"*.

Supervision of bachelor and master theses.

Supervision of undergraduate research assistants and trainees in research internships.

## SKILLS AND QUALIFICATIONS

---

Languages: German, English, French

Neuroimaging techniques: high-density EEG, intracranial EEG, brain-computer interfaces (closed-loop stimulation), polysomnography, fMRI, simultaneous EEG-fMRI

Data analysis & statistics: Matlab®, SPSS, R, FreeSurfer

Programming: Matlab®, Presentation®, Python, OpenSesame, ePrime, VBA in Excel, OpenVibe

Graphic Design: Gimp, Inkscape, Scribus

---

Bern, July 2018

Simon Ruch