Curriculum Vitae

Dr. Dorothea Hämmerer

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Personal information:
Born 11.7.1979, in Mainz

Present Appointments:

- Principal investigator at the *Institute of Cognitive Neurology and Dementia Research (IKND), Universitätsklinikum Magdeburg*
- Senior research fellow and head scientist at the *Clinical Neurophysiology and Memory group*, at the *Institute of Cognitive Neuroscience* at the *University College London*

Education

01/2006 – 12/2009	Dissertation at the *Max Planck Institute for Human Development* in Berlin with Prof. Ulman Lindenberger and Prof. Shu-Chen Li (grade summa cum laude)
04/ 2005	Diplom in Psychology at the *Albert-Ludwigs-University of Freiburg* (grade 1.3)
10/ 2003 – 07/ 2004	Diploma thesis at the *Max-Planck-Institute for Human Cognitive and Brain Sciences* in Leipzig with Markus Ullsperger (grade 1.0)

Previous positions

04/2019-09/2019	Vertretungsprofessur Developmental Psychology (W2), Universität Konstanz (concurrent to present appointments)
01/2010 - 02/2014	Postdoctoral fellow in the project 'Neuromodulation of Lifespan Cognition' with Prof. Shu-Chen Li at the *Max Planck Institute for Human Development in Berlin* and Chair of *Lifespan Psychology and Neuroscience at the Technical University in Dresden*

Research Interests

- Developmental cognitive neuroscience of decision making, executive functions and memory
- Neuroimaging of the noradrenergic system in ageing and Alzheimer's dementia

Grants / Awards

- 2021: Brenda Milner Award (7500€)
- 2020: SFB 1436 Project A08 *The noradrenergic system's contribution to neural resource in aging (502.600€)*
- 2019: CBBS 'Neuronetwork' '*Stimulation of the LC-NE system as a personalized therapeutic intervention*', Europäischer Fonds für regionale Entwicklung (EFRE) (205.000€ as PI of one subproject and coordinator of 4 subprojects of 'Neuronetwork', total funding 556.000€)
- 2019: CBBS Events grant: *'Meeting for the development of new in-vivo methods for the noradrenergic system'*, Europäischer Fonds für regionale Entwicklung (EFRE) (5000€)
- 2019: International cooperations grant, *'Developing new in-vivo methods for the noradrenergic system',* German Research Foundation (DFG) (3.500€)
- 2018: Senior research fellowship: '*Noradrenergic treatment for Alzheimer's Diesease'*, Alzheimer Research UK (ARUK) (420.000£)
- 2016: MRC research grant: '*Assessing the role of the noradrenergic locus coeruleus in healthy ageing and early Alzheimer's disease'* (Chief Investigator, Co-Applicant with Emrah Düzel, 233.555£)
- 2013: DAAD: Postdoctoral fellowship (40.000€)
- 2012: DFG: international cooperations grant, *'Altering cognitive functions with transcranial direct current stimulation',* German Research Foundation (DFG) (3.500€)

Professional outreach

- 27 publications (4 last author, 10 first author), *1104 citations, h-index: 16*
- Conference presentations: 27 talks (12 invited), 14 posters

Organization of meetings

- December 2019: 2nd Locus Coeruleus imaging meeting in Magdeburg (link)
- February 2018: 1st Locus Coeruleus imaging meeting in Magdeburg

  (bringing together Biologists, MR Physicists, Cognitive Neuroscientists, and Clinicians to discuss new methods in imaging the Locus Coeruleus in dementia and ageing)

Experience of leadership

- April 2019 - September 2019: Vertretungsprofessur W2, Entwicklungspsychologie, *Universität Konstanz*
- since April 2017: Chief Investigator, Assessing the role of the noradrenergic locus coeruleus for cognitive function in healthy ageing and early Alzheimer's disease (MRC project grant at *University College London*)
- since July 2016: head scientist, *Clinical Neurophysiology and Memory group* at the Institute of Cognitive Neuroscience, *University College London*

selected Collaborations / Affiliations

- Since 2018: Member of **Center for Behavioral Brain Sciences (CBBS),** Magdeburg
- Since 2017: Collaboration with **Prof. Rob Howard**, **Division of Psychiatry, University College London**, on changes in noradrenergic modulation in early Alzheimer's disease
- Since 2017: Affiliation with the **Cambridge Centre for Ageing and Neuroscience study (Cam-CAN)** and Collaboration with **Dr. Rogier Kievit, Prof. Rik Henson** on lifespan age differences in Locus Coeruleus integrity and noradrenergically modulated cognitive functions.
- Since 2016: Collaboration mit **Prof. Ray Dolan at the Max Planck UCL Centre for Computational Psychiatry and Ageing** on computational modeling of age differences in noradrenergic function in decision making.
- Since 2016: Collaboration with **Dr. Martina Callaghan at the Welcome Trust centre for Neuroimaging** on MR imaging of the noradrenergic system.
- 2014-2017: Collaboration with **S. Bestmann**, *Altering cognitive functions with transcranial direct current stimulation.* **Sobell Motor Department**, UCL, London, UK. (concluded, see publications)

Academic administration

- 2018: Examination Developmental Psychology at University Konstanz, Bachelor level
- 2012 /2013: Examination Psychology for Education at TU Dresden, Master level
- 2009: PhD representative MPI for Human Development, survey on working conditions in Max Planck in the Society

Memberships

- since 2006: DHV
- since 2008: Society for Neuroscience
- since 2015: German Psychological Society (DGP)

Ad hoc Reviewer:

Journals:

NeuroImage, Developmental Psychology, Neurobiology of Aging, Psychology and Aging, Cerebral Cortex, Neuroscience and Biobehavioral Reviews, Human Brain Mapping, Elife (guest editor)

Funding / Conferences:

DFG, Schweizerischer Nationalfonds zur Förderung der wissenschaftlichen Forschung, Israel Science Foundation, Abstract selection AAIC

Public Engagement

- 2018: **Studies after 50:** The relevance of changes in noradrenergic modulation for the early detection of Alzheimer's disease, Otto von Guericke University Magdeburg
- 2013: **Studium Generale:** *Brain development and adaptive behavioral regulation across the lifespan I: Cognitive Control,* Technical University Dresden.
- 2010: **MPS School outreach:** Developmental changes in cognitive control.

Publikationen

h-index: 16, 1104 citations, 831 in last 5 years (Citations based on Google Scholar)

1. Liu, Kathy, Acosta-Cabronero, Julio, Hong, Young T., Yi, Yeo.-Jin, Hämmerer, Dorothea, Howard, Robert, for the Alzheimer's Disease Neuroimaging Initiative *FDG-PET assessment of the locus coeruleus in Alzheimer's disease (in press)* **NeuroImage**

2. Adam D. Farmer, Adam Strzelczyk, Alessandra Finisguerra, Alexander V. Gourine, Alireza Gharabaghi, Alkomiet Hasan, Andreas Michael Burger, Andres M. Jaramillo, Ann Mertens, Arshad Majid, Bart Verkuil, Bashar W Badran, Carlos Ventura-Bort, Charly Gaul, Christian Beste, Christopher Michael Warren, Daniel S Quintana, Dorothea Hämmerer, Elena Freri, Eleni Frangos, Eleonora Tobaldini, Eugenijus Kaniusas, Fioravante Capone, Felix Rosenow, Fivos Panetsos, GARETH ACKLAND, Gaurav Kaithwas, Georgia H. O'Leary, Hannah Genheimer, Heidi IL Jacobs, Ilse Van Diest, Jean Schoenen, Jessica Redgrave, Jiliang Fang, James Deuchars, Jozsef C. Széles, Julian F Thayer, Kaushik More, Kristl Vonck, Laura Steenbergen, Lauro C Vianna, Lisa McTeague, Mareike Ludwig, Maria G. Veldhuizen, Marijke De Couck, Marina Casazza, Marius Keute, Marom Bikson, Marta Andreatta, Martina D'Agostini, Mathias Weymar, Matthew Betts, Matthias Prigge, Michael Kaess, Michael Roden, Michelle Thai, Nathaniel M. Schuster, Nicola Montano, Niels Hansen, Nils B. Kroemer, Peijing Rong, Rico Fischer, Robert H Howland, Roberta Sclocco, Roberta Sellaro, Ronald G Garcia, Sebastian Bauer, Sofiya Gancheva, Stavros Stavrakis, Stefan Kampusch, Susan A Deuchars, Sven Wehner, Sylvain Laborde, Taras Usichenko, Thomas Polak, Tino Zaehle, Uirassu Borges, Vanessa Teckentrup, Vera K. Jandackova, Vitaly Napadow, Julian Koenig *International Consensus Based Review and Recommendations for Minimum Reporting Standards in Research on Transcutaneous Vagus Nerve Stimulation. (in press)* **Frontiers in Human Neuroscience**,

3. Liu, K. Y., Kievit, R. A., Tsvetanov, K. A., Betts, M. J., Düzel, E., Rowe, J. B., Howard, R., Hämmerer, D. (2020) *Noradrenergic-dependent functions are associated with age-related locus coeruleus signal intensity differences.* (2020) **Nature communications,** 11 (1), 1-9, *Times cited: 3, Journal Impact Factor 11.88.*

4. Thurm, F. Li, S.-C., Hämmerer, D. (in press) *Maturation-and aging-related differences in electrophysiological correlates of error detection and error awareness*. (2020) **Neuropsychologia**, 107476, *Times cited: 1, Journal impact factor: 2.85.*

5. Baeuchl, C., Chen, H.-Y., Su,Y.S., Hämmerer, D., Klados, M.A., Li, S.-C.. *Interactive effects of dopamine transporter genotype and aging on resting-state functional networks.* (2019) **Plos ONE** 14(5) e0215849, *Journal Impact Factor 2.76.*

6. Matthew J. Betts, Evgeniya Kirilina, Maria Otaduy, Dimo Ivanov, Julio Acosta-Cabronero, Martina Callaghan, Christian Lambert, Arturo Cardenas-Blanco, Kerrin Pine, Luca Passamonti, Clare Loane[1], Max C. Keuken, Paula Trujillo, Falk Lüsebrink, Hendrik Mattern, Kathy Liu, Nikos Priovoulos, Klaus Fließbach, Martin J. Dahl, Anne Maaß, Christopher F. Madelung, David Meder, Alexander J. Ehrenberg, Oliver Speck, Nikolaus Weiskopf, Raymond Dolan, Ben Inglis, Duygu Tosun, Markus Morawski, Fabio A. Zucca, Hartwig Siebner, Mara Mather, Kamil Uludag, Helmut Heinsen, Benedikt A. Poser, Robert Howard, Luigi Zecca, James B Rowe, Lea T. Grinberg, Heidi I.L. Jacobs, Emrah Düzel*, Hämmerer, D*. *Locus coeruleus imaging as a biomarker for noradrenergic dysfunction in neurodegenerative diseases.* (2019) **Brain**, 142, 2558-2571, *Times cited: 43, Journal Impact Factor 10.84. * shared last*

7. Hämmerer, D ., Schwartenbeck, P., Gallagher, M., FitzGerald, T.H.B., Düzel, E. and Dolan, R.J. *Older adults fail to form stable task representations during model-based inference.* (2019) **Neurobiology of Aging** *74, 90-100. Times cited: 4, Journal Impact Factor 5.12.*

8. Liu, K. Y., Acosta-Cabronero, J., Cardenas-Blanco, A., Betts, M. J., Kievit, R.A., Henson, R.N., Loane, C., Berry, A.J., Düzel, E., Cam-CAN, Howard, R., Hämmerer, D. *In vivo visualization of age-related changes in the locus coeruleus (2019)* **Neurobiology of Aging** *74, 101-111. Times cited: 24, Journal Impact Factor 5.12.*

9. Betts, M., Ehrenberger, A. J., Hämmerer, D., Düzel, E. Commentary: Locus *Coeruleus Ablation Exacerbates Cognitive Deficits, Neuropathology, and Lethality in P301S Tau Transgenic Mice.* **Frontiers in Neuroscience** 12, 401. *Times cited: 9, Journal impact factor: 3.87.*

10. Hämmerer, D., Callaghan, M.F., Hopkins, A., Kosciessa, J., Betts, M., Cardenas-Blanco, A., Kanowski, M., Weiskopf, N., Dayan, P., Dolan, R.J. and Düzel, E. (2018) Locus coeruleus integrity in old age is selectively related to memories linked with salient negative events. **Proceedings of the National Academy of Sciences, 115 (9), 2228-2233.** *Times cited: 52, Journal impact factor: 9.66.*

11. Liu, K.Y., Marijatta F., Hämmerer D., Düzel E., Howard R.J. (2017) Magnetic resonance imaging of the human locus coeruleus: A systematic review, **Neuroscience and Biobehavioral Reviews**, 83, 325-355. *Times cited: 46, Journal Impact factor: 10.284.*

12. Hämmerer, D., Hopkins, A. Dolan, R. J., Düzel, E. (2017) Emotional arousal and recognition memory are differentially reflected in pupil diameter responses during emotional memory in younger and older adults. **Neurobiology of Aging***, 58, 129-139. Times cited: 15, Journal impact factor: 5.12.*

13. Fitzgerald, T. H. B., Hämmerer, D., Friston, K. J., Li, S.-C., Dolan, R. J. (2017) Sequential inference strategies correlate with individual differences in brain structures. **PLOS Computational Biology***,* 13 (5), e1005418. *Times cited: 16, Journal impact factor: 4.58.*

14. Hämmerer, D., Bonaiuto, J., Klein-Flügge, M., Bikson, M., Bestman, S (2016) Selective alteration of human value decision making with medial frontal tDCS is predicted by changes in attractor dynamics. **Nature Scientific Reports***,* 6, 25160. *Times cited: 30, Journal impact factor: 5.23*

15. Düzel, E., Guitart-Masip, M., Maass, A., Hämmerer, D., Betts, M., Speck, O., Weiskopf, N., Kanowski, M. (2015) Midbrain fMRI: Applications, Limitations and Challenges. In: fMRI: From Nuclear Spins to Brain Functions, Springer, New York. *Times cited: 13.*

16. Chen, J. A., Hämmerer, D., Strigaro, G., Liou, L.M., Tsai, C. H., Rothwell, J. C., Edwards, M. J. (2014) Domain-Specific Suppression of Auditory Mismatch Negativity with Transcranial Direct Current Stimulation. **Clinical Neurophysiology***, 125*, 585-592. *Times cited: 23, Journal impact factor: 3.40.*

17. Chen, J. A., Hämmerer, D., Marshal, L., Strigaro, G., Liou, L.M., Tsai, C. H., Rothwell, J. C., Edwards, M. J. (2014) Bi-directional Modulation of Somatosensory Mismatch Negativity with Transcranial Direct Current Stimulation. **Clinical Neurophysiology***, 592*, 745-757*. Times cited: 32, Journal impact factor: 3.40.*

18. Hämmerer, D., Müller, V., Heekeren, H. R., Lindenberger, U., & Li, S.-C. (2014) Performance monitoring across the lifespan: Still maturing post-conflict regulation in children and declining task-set monitoring in older adults. **Neuroscience & Biobehavioral Reviews***, 46, 105-123. Times cited: 17, Journal Impact factor: 10.284.*

19. Hämmerer, D., Li, S.-C., Völkle, M., Müller, V., & Lindenberger, U. (2013). A lifespan comparison of the reliability, test-retest stability, and signal-to-noise ratio of event-related potentials assessed during performance monitoring. **Psychophysiology**. *Times cited: 40, Journal impact factor: 3.29.*

20. Hämmerer, D., Biele, G., Müller, V., Thiele, H., Nürnberg, P., Heekeren, H. R. & Li, S.-C. (2013) Striatal Dopamine Signaling and Outcome Updating across the Lifespan: The Effect of PPP1R1B (DARPP-32) Polymorphism on Event-related Potentials. **Frontiers in Decision Neuroscience**. 4(89), 1.8. *Times cited: 16, Journal impact factor: 3.70.*

21. Papenberg, G., Hämmerer, D., Müller, V., Lindenberger, U., & Li, S.-C. (2013) Lower theta inter-trial phase coherence during performance monitoring is related to higher reaction time variability: A lifespan study. **NeuroImage***, 83,* 912-920. *Times cited: 58, Journal impact factor: 5.90.*

22. Hämmerer, D. & Eppinger, B. (2012) Dopaminergic and prefrontal contributions to learning and outcome monitoring during childhood and old age. **Developmental Psychology**, 48, 862-874. *Times cited: 72, Journal Impact factor: 3.21.*

23. Hämmerer, D., Li, S.-C., Müller, V., & Lindenberger, U. (2011). Life span differences in electrophysiological correlates of monitoring gains and losses during probabilistic

reinforcement learning. **Journal of Cognitive Neuroscience**, 23(3), 1-14. *Times cited: 154, Journal impact factor: 5.18.*

24. Eppinger, B., Hämmerer, D. & Li, S.-C. (2011) Neuromodulation of reward-based learning and decision making in human aging. **Annals of the New York Academy of Sciences**, 1235, 1-17. *Times cited: 189, Journal impact factor: 3.15.*

25. Hämmerer, D., Li, S.-C., Müller, V., & Lindenberger, U. (2010). An electrophysiological study of response conflict monitoring across the lifespan: Assessing the roles of conflict monitoring, cue utilization, response anticipation, and response suppression. **Neuropsychologia**, 40, 3305-3316. *Times cited: 104, Journal impact factor: 3.63.*

26. Li, S.-C., Hämmerer, D., Müller, V., Hommel, B., & Lindenberger, U. (2009). Lifespan development of stimulus-response conflict cost: Similarities and differences between maturation and senescence. **Psychological Research**, 73(6), 777-785. *Times cited: 46, Journal impact factor: 2.31.*

27. Wirtz, M., Farin, E., Bengel, J., Jäckel, W.H., Hämmerer, D. and Gerdes, N. (2005) IRES-24-Patientenfragebogen: Entwicklung der Kurzform eines Assessmentinstrumentes in der Rehabilitation mittels der Mixed-Rasch-Analyse. **Diagnostica**, 51(2), 75-87. *Times cited: 50, Journal impact factor: 0.72.*