

Curriculum Vitae

Björn Herrmann, Dr. rer. nat. (PhD), Dipl.-CommPsych

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The Brain and Mind Institute
The University of Western Ontario
London, Ontario N6A 5B7, Canada

Personal Information:

Nationality: German
Languages: native German speaker, fluent English speaker

Qualifications:

- 2011 **Dr. rer. nat. (PhD)**, *summa cum laude*
Psychology, University of Leipzig, Germany
Thesis title: "*Grammar and perception: Dissociation of early auditory processes in the brain*" (date of defense: 2011-10-27)
- 2008 **Diploma in Communication Psychology (MSc equivalent)**, *grade 1.0, equivalent to with distinction*
University of applied sciences Zittau/Görlitz, Germany
Thesis title: "*Localization of the syntactic mismatch negativity (sMMN) to phrase structure violations: An MEG study*"
- 2006 **Vordiplom in Communication Psychology (BSc equivalent)**, *grade 1.1, equivalent to with distinction*
University of applied sciences Zittau/Görlitz, Germany
- 2002 **Advanced technical college certificate (A-Level equivalent)**, *grade 1.8*
Kläre-Bloch-School, Night school, Berlin, Germany
- 2000 **Industrial mechanics for machines and systems (Apprenticeship)**
Siemens AG, Berlin, Germany

Academic employment

- 2015– **Post-doctoral fellow/associate**
University of Western Ontario, Brain & Mind Institute, London, ON, Canada,
Prof. I.S. Johnsrude
- 2012–2014 **Post-doctoral researcher**
Max Planck Research Group "Auditory Cognition", Max Planck Institute for
Human Cognitive and Brain Sciences, Leipzig, Germany, *Prof. J. Obleser*
- 10/2014 **Visiting post-doctoral researcher**

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Purdue University, Department of Biomedical Engineering, Central Auditory Processing Laboratory, West Lafayette, IN, USA, *Prof. E.L. Bartlett*

- 04/2014–
05/2014 **Visiting post-doctoral researcher**
Purdue University, Department of Biomedical Engineering, Central Auditory Processing Laboratory, West Lafayette, IN, USA, *Prof. E.L. Bartlett*
- 2008–2011 **PhD student in psychology**
Max Planck Institute for Human Cognitive and Brain Sciences, Department of Neuropsychology / Research Group “MEG and EEG: Signal Analysis and Modeling”, Leipzig, Germany, *Prof. A.D. Friederici, Dr. B. Maeß*
DFG (German research foundation) graduate program "Function of Attention in Cognition", University of Leipzig, Germany, *Prof. E. Schröger*
- 2006–2007 **Internship / research assistant**
Max Planck Institute for Human Cognitive and Brain Sciences, Research Group “MEG and EEG: Signal Analysis and Modeling”, Leipzig, Germany, *Dr. B. Maeß*
- 2005–2008 **Undergraduate research assistant**
University of applied sciences Zittau/Görlitz, Department of Communication Psychology, Görlitz, Germany, *Prof. J. Kawalek*

Non–Academic Employment (Full Time):

- 2003–2004 **Quality control inspector**, calibration laboratory
Siemens AG (Power Generation), Berlin, Germany
- 2002–2003 **Civil service**, janitor
Pro Seniore, Nursing home for the elderly, Berlin, Germany
- 2000–2002 **Quality control inspector**, calibration laboratory
Siemens AG (Power Generation), Berlin, Germany
- 1997–2000 **Apprenticeship for industrial mechanics**
Siemens AG, Berlin, Germany

Competitive Research funding

- 2018–
2019 One-year Western University’s **CFREF BrainsCAN Stimulus** **57.2K CAD**
grant “System-wide electrophysiological assessment of hearing”. (Role: Co-PI).
- 2017–
2020 **Research funds associated with BrainsCAN Postdoctoral** **15K CAD**
Scholars Program “Assessment of neural pathway function for hearing”, The University of Western Ontario, Canada
- 2017 **BMI Postdoctoral Collaborative Research Grant**, Western **1.85K CAD**
University. (Role: PI with D. Stolzberg) (declined)

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Competitive Postdoctoral Fellowships

submitted	CIHR Postdoctoral Fellowship “Physiological changes in neural pathway function that underlie age-related hearing challenges”, Canadian Institutes of Health Research, Canada	120K CAD
2017– 2020	BrainsCAN Postdoctoral Scholars Program “Assessment of neural pathway function for hearing”, The University of Western Ontario, Canada	210K CAD
2015– 2016	Western Cognitive Neuroscience Postdoctoral Fellowship Award , The Brain and Mind Institute, The University of Western Ontario, Canada	50K CAD

Awards and Honors:

2017	Postdoctoral Scholar of the Year Award , The University of Western Ontario, Canada	
2017	Travel award , International Conference on Auditory Cortex, Canada	500 CAD
2017	Travel award , Association for Research in Otolaryngology, USA	500 USD
2015	Trainee Professional Development Award , Society for Neuroscience, USA	1265 USD
2014	Travel award , German Academic Exchange Service (DAAD)	1384 €
2012	PhD award , Research Academy Leipzig, University of Leipzig, Germany	400 €

Publications and citation record (20-Mar-18, Google Scholar):

Number of publications:	35 (17 first author; 2 joint first author; 4 opinion/review papers)
Number of citations:	~690
Hirsch index:	16
i10 index:	22

List of publications in peer-review journals (N=35):

1. **Herrmann B**, Maess B, Johnsrude IS (2018) Aging affects adaptation to sound-level statistics in human auditory cortex. *The Journal of Neuroscience* 38:1989–1999.
2. **Herrmann B**, Johnsrude IS (2018) Attentional state modulates the effect of an irrelevant stimulus dimension on perception. *Journal of Experimental Psychology: Human Perception and Performance* 44: 89-105. ([webpage access](#))
3. **Herrmann B**, Parthasarathy A, Bartlett EL (2017) Aging affects dual encoding of periodicity and envelope shape in rat inferior colliculus neurons. *European Journal of Neuroscience* 2:299–311.

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4. Holmes E, **Herrmann B** (2017). Revisiting the contribution of auditory cortex to frequency-following responses. *The Journal of Neuroscience* 37:5218-5220. ([open access](#))
5. Henry MJ, **Herrmann B**, Kunke D, Obleser J (2017) Aging affects the balance of neural entrainment and top-down neural modulation in the listening brain. *Nature Communications* 8:15801. ([open access](#))
6. Henry MJ, **Herrmann B**, Grahn JA (2017) What can we learn about beat perception by comparing brain signals and stimulus envelopes? *PLoS ONE* 12:e0172454. ([open access](#))
7. **Herrmann B**, Henry MJ, Johnsrude IS, Obleser J (2016) Altered temporal dynamics of neural adaptation in the aging human auditory cortex. *Neurobiology of Aging* 45:10-22. ([webpage access](#))
8. **Herrmann B**, Henry MJ, Haegens S, Obleser J (2016) Temporal expectations and neural amplitude fluctuations in auditory cortex interactively influence perception. *NeuroImage* 124: 487-497.
9. Wöstmann M, **Herrmann B**, Maess B, Obleser J (2016) The spatiotemporal dynamics of auditory attention synchronize with speech. *Proceedings of the National Academy of Sciences* 113:3873-3878. ([open access](#))
10. Henry MJ, **Herrmann B**, Obleser J (2016) Neural microstates govern perception of auditory input without rhythmic structure. *The Journal of Neuroscience* 36:860-871. ([open access](#))
11. Scharinger M, Bendixen A, **Herrmann B**, Henry MJ, Mildner T, Obleser J (2016) Predictions interact with missing sensory evidence in semantic processing areas. *Human Brain Mapping* 37:704-716.
12. **Herrmann B**, Parthasarathy A, Han EX, Obleser J, Bartlett EL (2015) Sensitivity of rat inferior colliculus neurons to frequency distributions. *Journal of Neurophysiology* 114:2941-295. ([open access](#))
13. **Herrmann B**, Henry MJ, Fromboluti EK, McAuley JD, Obleser J (2015) Statistical context shapes stimulus-specific adaptation in human auditory cortex. *Journal of Neurophysiology* 113:2582-2591. ([open access](#))
14. Wöstmann M, **Herrmann B**, Wilsch A, Obleser J (2015) Neural alpha dynamics in younger and older listeners reflect acoustic challenges and predictive benefits. *The Journal of Neuroscience* 35:1458-1467. ([open access](#))
15. Henry MJ, **Herrmann B**, Obleser J (2015) Selective attention to temporal features on nested time scales. *Cerebral Cortex* 25:450-459. ([open access](#))
16. Wilsch A, Henry MJ, **Herrmann B**, Maess B, Obleser J (2015) Alpha oscillatory dynamics index temporal expectation benefits in working memory. *Cerebral Cortex* 25: 1938-1946. ([open access](#))
17. Wilsch A, Henry MJ, **Herrmann B**, Maess B, Obleser J (2015) Slow-delta phase concentration marks improved temporal expectations based on the passage of time. *Psychophysiology* 52:910–918.

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18. **Herrmann B**, Schlichting N, Obleser J (2014) Dynamic range adaptation to spectral stimulus statistics in human auditory cortex. *The Journal of Neuroscience* 34:327-331. ([open access](#))
19. **Herrmann B**, Henry MJ, Scharinger M, Obleser J (2014) Supplementary motor area activations predict individual differences in temporal-change sensitivity and its illusory distortions. *NeuroImage* 101:370-379.
20. Henry MJ, **Herrmann B**, Obleser J (2014) Entrained neural oscillations in multiple frequency bands co-modulate behavior. *Proceedings of the National Academy of Sciences* 111:14935-14940. ([open access](#))
21. Henry MJ, **Herrmann B** (2014) Low-frequency neural oscillations support dynamic attending in temporal context. *Timing & Time Perception*, 2:62-86. ([open access](#))
22. Scharinger M, **Herrmann B**, Nierhaus T, Obleser J (2014) Simultaneous EEG-fMRI brain signatures of auditory cue utilization. *Frontiers in Neuroscience* 8:Article 137. ([open access](#))
23. **Herrmann B**, Henry MJ, Grigutsch M, Obleser J (2013) Oscillatory phase dynamics in neural entrainment underpin illusory percepts of time. *The Journal of Neuroscience* 33:15799-15809. ([open access](#))
24. **Herrmann B**, Henry MJ, Scharinger M, Obleser J (2013) Auditory filter width affects response magnitude but not frequency specificity in auditory cortex. *Hearing Research* 304:128-136. ([webpage access](#))
25. **Herrmann B**, Henry MJ, Obleser J (2013) Frequency-specific adaptation in human auditory cortex depends on the spectral variance in the acoustic stimulation. *Journal of Neurophysiology* 109:2086-2096. ([open access](#))
26. Ruhnau P, **Herrmann B**, Maess B, Brauer J, Friederici AD, Schröger E (2013) Processing of complex distracting sounds in school-aged children and adults: Evidence from EEG and MEG data. *Frontiers in Psychology* 4:717. ([open access](#))
27. **Herrmann B**, Maess B, Kalberlah C, Haynes J-D, Friederici AD (2012) Auditory perception and syntactic cognition: Brain activity-based decoding within and across subjects. *European Journal of Neuroscience* 35:1488-1496.
28. **Herrmann B**, Obleser J, Kalberlah C, Haynes J-D, Friederici AD (2012) Dissociable neural imprints of perception and grammar in auditory functional imaging. *Human Brain Mapping* 33:584-595.
29. Ruhnau P*, **Herrmann B***, Schröger E (2012) Finding the right control: The mismatch negativity under investigation. *Clinical Neurophysiology* 123:507-512.
30. Henry MJ*, **Herrmann B*** (2012) A precluding role of low-frequency oscillations for auditory perception in a continuous processing mode. *The Journal of Neuroscience* 32:17525–17527. ([open access](#))
31. Obleser J, **Herrmann B**, Henry MJ (2012) Neural oscillations in speech: Don't be enslaved by the envelope. *Frontiers in Human Neuroscience* 6:250. ([open access](#))

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32. **Herrmann B**, Maess B, Hahne A, Schröger E, Friederici AD (2011) Syntactic and auditory spatial processing in the human temporal cortex: An MEG study. *NeuroImage* 57:624–633.
33. **Herrmann B**, Maess B, Friederici AD (2011) Violation of syntax and prosody - Disentangling their contributions to the early left anterior negativity (ELAN). *Neuroscience Letters* 490:116-120. ([webpage access](#))
34. Ruhnau P, **Herrmann B**, Maess B, Schröger E (2011) Maturation of obligatory auditory responses and their neural sources: Evidence from EEG and MEG. *NeuroImage* 58:630-639.
35. **Herrmann B**, Maess B, Hasting AS, Friederici AD (2009) Localization of the syntactic mismatch negativity in the temporal cortex: An MEG study. *NeuroImage* 48:590-600.

* Authors contributed equally to the work.

Manuscripts submitted / under review / in revision:

Herrmann B, Johnsrude IS (submitted) Neural signatures of the processing of temporal patterns in sounds. BioRxiv 2018/261271. Preprint

Parthasarathy A*, **Herrmann B***, Bartlett EL (under review) Aging alters envelope representations of speech-like sounds in the inferior colliculus.

Kwok E, Cardy JO, Allman BL, Allen P, **Herrmann B** (under review) Dynamics of spontaneous neural activity correlate with language ability in young children.

Wilsch A, Henry MJ, **Herrmann B**, Herrmann C, Obleser J (in revision) Temporal expectation modulates cortical dynamics of sensory memory. BioRxiv 2017/201756. Preprint

Talks (N=17, incl. N=13 invited):

2018 *Aging alters neural signatures of temporal regularity detection in sounds (invited talk)*. New Horizons in Vision and Hearing Research Symposium, Tübingen, Germany.

2017 *Neural and perceptual organization of auditory signals (invited talk)*. Department of Neurosurgery, University of Iowa, IA, USA.

Neural and perceptual organization of auditory signals (invited talk). Department of Psychology, Concordia University, QC, Canada.

Neural and perceptual organization of auditory signals (invited talk). Department of Psychology, University of Lübeck, Germany.

Altered adaptation to sound-level statistics in the auditory cortex of older adult humans (slide session speaker). International Conference on Auditory Cortex, Banff, AB, Canada.

The neural bases and age-related impairments of sound pattern processing (invited talk). Max Planck Society, Berlin, Germany.

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*Neural oscillations support perception in temporally regular acoustic environments (**invited talk**). Association for Research in Otolaryngology Meeting, Baltimore, MD, USA – Symposium: Patterns in sound sequences.*

2015 *An adaptive auditory system supports listening in contexts (**invited talk**). Speech, Language & Hearing Science Department, Purdue University, West Lafayette, IN, USA.*

*Neural adaptation depends on temporal context in younger and older listeners (**slide session speaker**). Society for Neuroscience, Chicago, IL, USA – Nanosymposium: Auditory processing: Cortical encoding of complex sounds.*

*An adaptive auditory system supports hearing in diverse acoustic environments (**invited talk**). The Brain and Mind Institute, The University of Western Ontario, London, Canada.*

*A flexible auditory system supports listening in contexts (**invited speaker**). The National Audiology Centre, Elborn College, London, Canada.*

*Neural adaptation in varying temporal contexts (**slide session speaker**). The University of Western Ontario, London, Canada – Rhythm & Timing Symposium.*

2014 *Dynamic adjustments of neural activity to a temporally and spectrally changing acoustic environment (**invited speaker**). Purdue University, West Lafayette, IN, USA – Seminars in Hearing Research.*

*How a changing acoustic environment affects neural adaptation (**invited speaker**). University of Leipzig, Germany – Psychology Colloquium.*

*Dynamic neural adaptation to changes in the acoustic environment, (**invited speaker**). University of Oldenburg, Germany – Psychology Colloquium.*

2013 *Dynamic neural adaptation to changes in the acoustic environment (**slide session speaker**). Berlin, Germany – Young Scientist Retreat.*

*Low-frequency neural oscillatory dynamics and their role in auditory perception, (**invited speaker**). Center for Mind/Brain Sciences, University of Trento, Italy – MEG workshop: Disentangling the brain web: a perspective from magnetoencephalography.*

Teaching Experience:

2017 Guest lecture, The University of Western Ontario, Canada
Course: Biomedical Signal Processing: Analysis of multi-channel EEG data
School of Communication Sciences and Disorders

2017 Workshop on Aesthetics in Cognitive Neuroscience, The University of Western Ontario, Canada
Half-day workshop on aesthetics in science and hands-on graphic design
The Brain and Mind Institute

2017 Guest lecture, The University of Western Ontario, Canada
Course: Introduction to Evoked Potentials: Magnetoencephalography

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School of Communication Sciences and Disorders

- 2016 Workshop on Electroencephalography, The University of Western Ontario, Canada
3-day workshop on EEG-theory and hands-on analysis
The Brain and Mind Institute, Department of Psychology
- 2014 Guest lectures (N=3), University of Leipzig, Germany
Course: Methods in cognitive neuroscience: Behavioral and psychophysical methods; Electrophysiology; Electroencephalography
Department of Psychology
- 2013 Guest lectures (N=3), University of Leipzig, Germany
Course: Methods in cognitive neuroscience: Electrophysiology; Electroencephalography; Magnetoencephalography
Department of Psychology
- 2012 Guest lecture, University of Leipzig, Germany
Course: Methods in cognitive neuroscience: Magnetoencephalography
Department of Psychology
- 2007 Seminar, University of applied sciences Zittau / Görlitz, Germany
Course: Multimedia psychology
Department of Communication Psychology

Teaching/Professional Development:

- 2015 Teaching Support Centre workshop: "Teaching with technology" (workshop attended as a participant)

Supervision / Informal Co-Supervision:

- PhD theses *Malte Wöstmann*, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany, 2012–2015 · *Anna Wilsch*, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany, 2012–2014.
- MSc theses *Sonia Varma*, The University of Western Ontario, Canada, 2017–present · *Mason Kadem*, The University of Western Ontario, Canada, 2017–present
- BSc theses *Nadine Schlichting*, University of Chemnitz, Germany, 2013.
- Honor's theses *Luka Petrusevski*, The University of Western Ontario, Canada, 2017–2018 · *Maya Ramakrishnan*, The University of Western Ontario, Canada, 2015–2016.
- Research assistants *Chad Buckland*, The University of Western Ontario, Canada, 2017 · *Youngkyung Jung*, The University of Western Ontario, Canada, 2016–present · *Suvarna Moharir*, The University of Western Ontario, Canada, 2015–2017 · *Kristian McCarthy*, The University of Western Ontario, Canada,

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2015–2017 · *Patrick Park*, The University of Western Ontario, Canada,
2015–2016 · *Jackie Tsang*, The University of Western Ontario, Canada,
2015 · *Kristina Bauer*, University of Leipzig, Germany, 2014–2015 · *Steven Kalinke*, University of Leipzig, Germany, 2013–2015 · *Leonhard Waschke*, University of Leipzig, Germany, 2013–2014 · *Mirja Kuhlencord*, University of Leipzig, Germany, 2013–2014 · *Christoph Daube*, University of Leipzig, Germany, 2012–2013

Interns *Nadine Schlichting*, University of Chemnitz, Germany, 2012 · *Nancy Grochol*, University of Leipzig, Germany, 2012 · *Sandra Siedlok*, University of Chemnitz, Germany, 2010 · *Thomas Pfeffer*, University of Magdeburg, Germany, 2009 · *Christian Hoffmann*, University of Osnabrück, Germany, 2009.

Reviewing – Funding agencies:

Deutsche Forschungsgemeinschaft (German Research Foundation), Germany
National Science Foundation (NSF), USA

Reviewing – Journals:

The Journal of Neuroscience; eLife; NeuroImage; Journal of Neurophysiology; Neuropsychologia; Attention, Perception, & Psychophysics; Transactions on Biomedical Engineering; European Journal of Neuroscience; Brain Structure and Function; PLoS ONE; Neuroscience; Psychophysiology; Timing & Time Perception; Brain Topography; Frontiers in Psychology; Frontiers in Systems Neuroscience; International Journal of Psychophysiology; Journal of Memory and Language; Neuroscience Letters; Brain and Language; Brain Research; Brain and Cognition; Experimental Brain Research; Cognitive Neuroscience; Language, Cognition and Neuroscience

Professional Organizations / Memberships:

2015–present Association for Research in Otolaryngology
2013–present Society for Neuroscience

Other Activities:

2016 Thames Valley Science & Engineering Fair, High school, Judge
2014 Public science report, “Auditory processing in the brain: Dynamic adaptation to the acoustic environment”, Yearbook of the Max Planck Society, Germany, <http://www.mpg.de/7842770/>
2005–2006 Steering committee, student representative, Communication Psychology University of applied sciences Zittau/Görlitz, Germany

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Conference poster presentations:

First-author (N=22) **2018:** Association for Research in Otolaryngology (San Diego, USA); **2017:** International Conference on Auditory Cortex (Banff, Canada) · CuttingEEG symposium (Glasgow, Scotland); **2016:** Association for Research in Otolaryngology (N=2; San Diego, USA) · Society for Neuroscience (San Diego, USA) · Symposium on Advances and Perspectives in Auditory Neurophysiology (San Diego, USA); **2015:** Society for Neuroscience (Chicago, USA); **2014:** Society for Neuroscience (Washington DC, USA) · Symposium on Advances and Perspectives in Auditory Neurophysiology (Washington DC, USA) · Cognitive Neuroscience Society (Boston, USA) · International Conference on Auditory Cortex (Magdeburg, Germany); **2013:** Society for Neuroscience (San Diego, USA) · Symposium on Advances and Perspectives in Auditory Neurophysiology (San Diego, USA) · CRC Conference 2013: Rhythmic Dynamics and Cognition (Boston, USA) · Conference on Cognitive Hearing Science for Communication (Linköping, Sweden) · Psychologie und Gehirn (Würzburg, Germany); **2012:** International Conference on Auditory Cortex (Lausanne, Switzerland); **2011:** Cognitive Neuroscience Society (San Francisco, USA); **2010:** Research Festival Leipzig (Leipzig, Germany) · International Conference on Biomagnetism (Dubrovnik, Croatia); **2009:** Conference on Mismatch Negativity (Budapest, Hungary).

Co-author (N=26) **2018:** Association for Research in Otolaryngology (San Diego, USA); **2017:** Society for Neuroscience (Washington DC, USA) · **2015:** Society for Neuroscience (Chicago, USA) · Cognitive Neuroscience Society (San Francisco, USA); **2014:** Society for Neuroscience (N=3, Washington DC, USA) · Symposium on Advances and Perspectives in Auditory Neurophysiology (Washington DC, USA) · International Conference on Auditory Cortex (Magdeburg, Germany) · Cognitive Neuroscience Society (Boston, USA) · Erlanger audiology colloquium for scientists and developers (Erlangen, Germany); **2013:** Society for Neuroscience (San Diego, USA) · Neurobiology of Language Conference (San Diego, USA) · Symposium on Advances and Perspectives in Auditory Neurophysiology (San Diego, USA) · International Conference on Basic and Clinical Multimodal Imaging (Geneva, Switzerland) · TIMELY Workshop on "Development of Timing and Time Perception: A lifespan perspective" (Granada, Spain) · CRC Conference 2013: Rhythmic Dynamics and Cognition (Boston, USA) · International Conference on Cognitive Hearing Science for Communication (Linköping, Sweden) · Psychologie und Gehirn (Würzburg, Germany) · Cognitive Neuroscience Society (San Francisco, USA); **2012:** Society for Neuroscience (New Orleans, USA) · Conference on Mismatch Negativity (New York, USA); **2011:** Cognitive Neuroscience Society (San Francisco, USA) · International Conference on Cognitive Neuroscience (Palma, Mallorca, Spain); **2010:** Psychologie und Gehirn (Greifswald, Germany); **2009:** Conference on Mismatch Negativity (Budapest, Hungary).