

Curriculum Vitae

Name: Hans Magnus Henrik Lundell
Orchid ID: 0000-0002-7044-442X
Date of Birth: February 23, 1981, Stockholm, Sweden
Nationality: Swedish

EDUCATION

- 2011 **PhD** Department of Exercise and Sport Sciences & Department of Neuroscience and Pharmacology, University of Copenhagen and DRCMR, Copenhagen University Hospital Hvidovre, Denmark.
- 2007 **MSc** Engineering Physics, DRCMR, Copenhagen University Hospital Hvidovre and Physics Department, Technical University of Denmark, DTU, Denmark in collaboration with Novo Nordisk A/S - Device Research and Technology, Hillerød, Denmark.
- 2004 **BSc** Institute for Mathematical Modeling (IMM, now COMPUTE), Technical University of Denmark, DTU, Denmark.

CURRENT POSITIONS

- 2017- **Senior Researcher and group leader**, DRCMR, Copenhagen University Hospital Hvidovre, REGIONH, Denmark.
- 2015- **Pipeline manager**, Reader Centre, DRCMR, Copenhagen University Hospital Hvidovre, REGIONH, Denmark.
- 2013- **External lecturer**, Sino-Danish Centre, Chinese Academy of Science, Beijing, China.

PREVIOUS POSITIONS

- 2011-2017 **Postdoc**, DRCMR, Copenhagen University Hospital Hvidovre
- 2007-2011 **PhD-student**, Department of Exercise and Sport Sciences & Department of Neuroscience and Pharmacology, University of Copenhagen
- 2007 **Research assistant**, Department of Exercise and Sport Sciences & Department of Neuroscience and Pharmacology, University of Copenhagen.
- 2005 **Research assistant**, BMW Forschung & Technik GmbH, Munich, Germany.
- 2000 **Research assistant**, Royal Institute of Technology, Stockholm, Sweden.

SUPERVISION OF STUDENTS

Bs

- 2012 Casper Kaae Sønderby (Technical University of Denmark)
- 2017 Martin Gæde (Technical University of Denmark)

Ms

- 2013 Nanna Møller Pedersen (Technical University of Denmark)
- 2014-2015 Jonathan Scharff Nielsen (Niels Bohr Institute, University of Copenhagen)
- 2017-2018 Sidsel Winther (Niels Bohr Institute, University of Copenhagen)
- 2018 Shahab Brandt Ajloo (Technical University of Denmark)
- 2018 Marta Marques (DRCMR)

Phd

- 2010-2013 Mark Lyksborg (Technical University of Denmark)
- 2011-2014 Nina Reisleiv (University of Copenhagen)
- 2013-2014 Karen Marie Sandø Ambrosen (Technical University of Denmark)
- 2017- Mads Alexander Just Madsen (University of Copenhagen)

- 2017- Miriam Andersson (Technical University of Denmark)

TEACHING and PUBLIC OUTREACH

- Teaching at the Sino-Danish Center (SDC) for Education and Research at the Chinese Academy of Science, Beijing, China. Co-organizer of the SDC master level course “Integrative Neuroscience”, 2013-2018.
- Lectures on neuroanatomy, MRI physics and diffusion MRI on undergraduate and PhD courses at the Technical University of Denmark (DTU), University of Copenhagen and DRCMR in 2008-2017.
- Material and illustrations for clinical textbooks, including two cover illustration. Gjerris et al, 2010 (ISBN: 87-7749-550-0), Fleckenstein, Myschetzky and Trantum-Jensen, 2014 (ISBN: 9781405139915), Cohen-Adad and Wheeler-Kingshott, 2014 (ISBN: 9780123969736) Soelberg Sørensen et al, 2016 (ISBN: 9788712049661)
- Contributions to popular scientific program on Danish television DR2, “Temalørdag” about dementia.
- Main organizer of five annual symposia at DRCMR.

MAJOR INTERNATIONAL COLLABORATORS

- Involvement in the Sino-Danish Center (SDC) for Education and Research at the Chinese Academy of Science, Beijing, China.
- Collaboration with international research groups: Ass. Prof. Itamar Ronen, Leiden University Medical Center, Leiden, The Netherlands; PhD Irvin Teh University of Oxford and University of Leeds, UK; PhD Chris Steele, Max Planck Institute, Leipzig, Germany; Ass. Prof. Seth Smith, Vanderbilt University, Nashville, USA; Prof. Daniel Topgaard and Ass. Prof Markus Nilsson, Lund University, Sweden.
- Member of the CONNECT consortium, FET program, European Commission (FP7), 2010-2012 (www.brain-connect.eu).

COMMISSIONS OF TRUST

- 2012-2018 Reviewer for the journals Neuroimage, NMR in Biomedicine, Neuroradiology, Neurobiology of Ageing, Journal for Neurophysiology, Nature Spinal Cord, Journal of Magnetic Resonance, Frontier in Neuroscience and Frontiers in Physics.
- 2012-2018 Grant reviewer, The Wings for Life Spinal Cord Research Foundation, Austria
- 2015 Grant reviewer, German Research Foundation.
- 2014 Master Thesis evaluator, Center for Functional Integrative Neuroscience, Aarhus University, Denmark.

MAJOR FUNDING, AWARDS AND HONOURS

- ERC Starting Grant 2018-2023.
- Independent Postdoc grant, Danish Research Council for Independent Research, Technology and Production 2015-2018
- Sapere Aude, Research talent prize from the Danish Research Council for Independent Research 2015.
- Magna Cum Laude award, International Society for Magnetic Resonance in Medicine (ISMRM), 21st ISMRM annual meeting 2013.
- Best oral presentation at the Novo Scholarship Symposium, 2007.

CAREER BREAKS

- Paternity leave (26 weeks). 2015:15-30/10, 2016:18/7-14/10, 2019:7-21/1 and 26/6-26/8

PUBLICATION LIST

Name: Hans Magnus Henrik Lundell

Date: 11.12.2018

H-factor: 14, Number of citations: 746 (Google Scholar, 15.08.2019)

Significant contributions are marked with an *

Peer reviewed articles:

(22)

Lundell et al Multidimensional diffusion MRI with spectrally modulated gradients reveals unprecedented microstructural detail (2019), Nature Scientific Reports, in press

(21)

Sangari S, **Lundell H**, Kirshblum S, Perez MA, (2019) Residual Descending Motor Pathways Influence Spasticity after Spinal Cord Injury, Annals in Neurology, in press

(20)

Dyrby TB, Bech M, Innocenti G, **Lundell H**, (2018), Validation strategies for the interpretation of microstructure imaging using diffusion MRI, Neuroimage, in press

(19)

*Scharff Nielsen J, Dyrby TB, **Lundell H**. (2018) Magnetic resonance temporal diffusion tensor spectroscopy of disordered anisotropic tissue. Sci. Rep. 2018,8:2930, 12 pages

(18)

Lasič S, **Lundell H**, Topgaard D, and Dyrby TB. (2018) Effects of imaging gradients in sequences with varying longitudinal storage time – case of diffusion exchange imaging. Magn. Reson. Med. 79(4):2228-2235

(17)

Reislev NH, Dyrby TB, Siebner HR, **Lundell H**, Ptito M, Kupers R. (2017) Thalamocortical Connectivity and Microstructural Changes in Congenital and Late Blindness, Neural Plast. 2017:9807512, 11 pages

(16)

Lundell H, Svolgaard O, Dogonowski AM, Romme Christensen J, Selleberg F, Soelberg Sørensen P, Blinkenberg M, Siebner HR, Garde E (2017) Spinal cord atrophy in anterior-posterior direction reflects impairment in multiple sclerosis, *Acta Neurol Scand.* 136(4):330-337

(15)

*Shemesh N, Jespersen SN, Alexander DC, Cohen Y, Drobnjak I, Dyrby TB, Finsterbusch J, Koch MA, Kuder T, Laun F, Lawrenz M, **Lundell H**, Mitra PP, Nilsson M, Özarslan E, Topgaard D, Westin CF, (2017) Conventions and nomenclature for double diffusion encoding (DDE) NMR and MRI, *Magn. Reson. Med.* 75(1):82-87

(14)

Barthélemy D, Willerslev-Olsen M, **Lundell H**, Biering-Sørensen F, Nielsen JB. (2015) Assessment of transmission in specific descending pathways in relation to gait and balance following spinal cord injury, *Prog. Brain Res.* 218:79-101

(13)

***Lundell H**, Sønderby KS, Dyrby TB (2015) Diffusion Weighted Imaging with Circularly Polarized Oscillating Gradients, *Magn. Reson. Med.* 73(3):1171-6

(12)

Dyrby TB, **Lundell H**, Burke MW, Reislev NL, Paulson OB, Ptito M, Siebner HR (2014) Interpolation of diffusion weighted imaging datasets, *Neuroimage* 103:202-13

(11)

Lundell H, Alexander DA, Dyrby TB, High angular resolution diffusion imaging with stimulated echoes: compensation and correction in experiment design and analysis (2014) *NMR in Biomed.* 27(8): 918-925

(10)

Sønderby KS, **Lundell H**, Søgaard LV, Dyrby TB (2015) Apparent exchange rate imaging in anisotropic systems, *Magn. Reson. Med.* 72(3):756-762

(9)

Jespersen SN, **Lundell H**, Sønderby KS, Dyrby TB (2014) Commentary on "Microanisotropy imaging: quantification of microscopic diffusion anisotropy and orientation of order parameter by diffusion MRI with magic-angle spinning of the q-vector", Front. Phys. 2:28, 2 pages

(8)

*Jespersen SN, **Lundell H**, Sønderby KS, Dyrby TB (2013) Rotationally invariant sampling of double pulsed field gradient diffusion: estimating apparent compartment eccentricity, NMR in Biomedicine 26(12):1-16

(7)

Lundell H, Barthélemy D, Biering-Sørensen F, Cohen-Adad J, Nielsen J B, Dyrby T B (2013) Fast Diffusion Tensor Imaging and Tractography of the Whole Cervical Spinal Cord Using Point Spread Function Corrected Echo Planar Imaging, Magn. Reson. Med. 69:144-149

(6)

Assaf Y and the CONNECT consortium (including **Lundell H**) (2013) The CONNECT project: Combining macro- and micro-structure, NeuroImage 80:273-282

(5)

Barthélemy D, Knudsen H, Willerslev-Olsen, **Lundell H**, Biering-Sørensen, Nielsen J B (2013) Functional implications of corticospinal tract impairment far gait after spinal cord injury, Spinal Cord 51:852-856

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***Lundell H**, Nielsen JB, Ptito M, Dyrby TB. (2011) Distribution of collateral fibers in the monkey cervical spinal cord detected with diffusion weighted magnetic resonance imaging, Neuroimage 56:923-929

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***Lundell H**, Christensen MS , Barthélemy D , Willerslev-Olsen M , Biering-

Sørensen F, Nielsen J B (2011) Cerebral activation is correlated to regional atrophy of the spinal cord and functional motor disability in spinal cord injured individuals, *Neuroimage* 54:1254-1261

(2)

***Lundell, H**, Barthelemy, D, Skimminge, A, Dyrby, TB, Biering-Sørensen, F, Nielsen, J B (2011) Independent spinal cord atrophy measures correlate to motor and sensory deficits in individuals with spinal cord injury, *Spinal Cord* 49:70-75

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Barthélemy D, Willerslev-Olsen M, **Lundell H**, Conway BA, Knudsen H, Biering-Sorensen F, Nielsen J B (2011) Impaired transmission in the corticospinal tract and gait disability in spinal cord injured persons, *J. Neurophysiol.* 104:1167-1176

Pending patent applications:

A METHOD OF PERFORMING DIFFUSION WEIGHTED MAGNETIC RESONANCE MEASUREMENTS ON A SAMPLE (1), ref. 21094822, Swedish Patent and Registration Office, submitted November 2017

A METHOD OF PERFORMING DIFFUSION WEIGHTED MAGNETIC RESONANCE MEASUREMENTS ON A SAMPLE (2), ref. 21094811, Swedish Patent and Registration Office, submitted November 2017

Peer-reviewed conference contributions:

***Lundell H**, Webb A, Ronen I, Cell specific anisotropy with double diffusion encoding spectroscopy in the human brain at 7T, 2018. in proc. ISMRM 2018, 26, p. 259, (Oral)

Lundell H, Nilsson M, Westin CF, Topgaard D, and Lasič S, Spectral anisotropy in multidimensional diffusion encoding, 2018. in proc. ISMRM 2018, 26, p. 887, (Oral)

Reislev N, **Lundell H**, Siebner H, Eriksen C, Kjær M, Garde E, Differentiation of white matter hyperintensity severity using T2- and T1-weighted brain MRI, 2018, in proc. ISMRM 2018, 26, p. 2075 (Poster)

Andersen K, Lundell H, Nilsson M, Lasic S, Topgaard D, Szczepankiewicz F, Hanson L, Siebner H, Blinkenberg M, Dyrby T, Multi-dimensional microstructural imaging offers novel in vivo insights into brain pathology: an application to multiple sclerosis, 2018, in proc. ISMRM 2018, 26, p. 5284 (Electronic poster)

***Lundell H**, Nilsson M, Dyrby TB, Parker GJM, Cristinacce, PLH, Zhou F, Topgaard D, Lasic S. Spectrally Modulated q-Vector Trajectories for Resolving Restricted, Anisotropic, and Multi-Gaussian Diffusion 2018. in proc. MRPM, 14, (Oral)

***Lundell H**, Nilsson M, Dyrby TB, Parker GJM, Cristinacce, PLH, Zhou F, Topgaard D, Lasic S. Microscopic anisotropy with spectrally modulated q-space trajectory encoding. 2017. in proc. ISMRM 2017, 25, p. 1086, (Oral power pitch)

***Lundell H**, Ingo, C, Dyrby TB, Ronen I, Accurate estimation of intra-axonal diffusivity and anisotropy of NAA in humans at 7T. 2017. in proc. ISMRM 2017, 25, p. 1083, (Oral power pitch)

Magnusson, OP, Boer VO, Marsman A, **Lundell H**, Hanson LG, Petersen ET. GABA-edited echo-planar spectroscopic imaging (EPSI) with MEGA-sLASER at 7T. 2017. in proc. ISMRM 2017, 25, p. 1255, (Oral)

Boer, VO, **Lundell H**, Dyrby TB, Ronen I, Petersen ET, Dual Voxel Diffusion Weighted MR-Spectroscopy. 2017. in proc. ISMRM 2017, 25, p. 5491, (Electronic poster)

Teh, I, Schneider JE, Whittington HJ, Dyrby TB, **Lundell H**, Temporal Diffusion Spectroscopy in the Heart with Oscillating Gradients. 2017. in proc. ISMRM 2017, 25, p. 3114, (Electronic poster)

Lasic S., Jespersen SN, **Lundell H**, Nilsson M, Dyrby TB, Topgaard D. Apparent Exchange Rate in Multi-compartment Anisotropic Tissue. in proc.

ISMRM 2016, 24, p. 3083, (Electronic poster)

Reislev NL, **Lundell H**, Siebner HR, Garde E, Differentiation of white matter hyperintensities based on T2- and T1-weighted brain MRI. VAS-COG, 2016. (Poster)

Teh I, **Lundell H**, Whittington HJ, Dyrby TB, Schneider JE, Resolving Microscopic Fractional Anisotropy in the Heart, in proc. ISMRM 2016, 24, p. 800, (Oral)

Samo L, **Lundell H**, S nderby KS, Topgaard D, Dyrby TB, Confounding effects of imaging gradients in stimulated echo: case of diffusion exchange imaging, in proc. ISMRM 2015, 23, p. 2792, (Electronic poster)

Lundell H, Dyrby TB, Hubbard Cristance PL, Zhou FL, Parker GJM, Jespersen SN, Validation of double diffusion schemes of microscopic fractional anisotropy, in proc. ISMRM 2015, 23, p. 155, (Oral)

Nielsen JS, Dyrby TB, **Lundell H**, Detection of curvature and microscopic anisotropy of neuritis at short length scales, in proc. ISMRM 2015, 23, p. 345 (Oral power pitch)

Lundell H, S nderby C, Dyrby TB, 2014, Experimental considerations for OGSE of anisotropic tissue, in proc. ISMRM 2014, 22, pp. 6665, (Poster)

S nderby C, **Lundell H**, Dyrby TB, 2014, Exchange and T2-relaxation effects in double pulsed field gradient experiments, in proc. ISMRM 2014, 22, pp. 6360, (Poster)

Lundell H, S nderby C., Dyrby TB, 2013, Increasing the sensitivity of temporal diffusion spectroscopy with circularly polarized oscillating gradient spin echo, in proc. ISMRM 2013, 21, p. 2073, 1 page (**Magna Cum Laude award, Poster**)

Lundell H, Svolgaard O., Dogonowski M., Romme Christensen J., S rensen P.S., Sellebjerg F., Sibner H., Garde E, 2013, Independent component analysis of localized spinal cord atrophy discriminates between multiple sclerosis phenotypes, in proc. ECTRIMS, 29, p. 1340, (Poster)

Lundell H, Dyrby T., 2013, Tractography-based parcellation of the cerebellum based on high-resolution diffusion tensor imaging, in proc. OHBM, 19, p. 3542, (Poster)

Jespersen SN, **Lundell H**, Sønderby KS, Dyrby TB, 2013, Rotationally invariant double pulsed field gradient diffusion imaging, in proc. ISMRM, 21, p. 2071, (Electronic poster)

Garde E., **Lundell H**, Dogonowski A.-M., Gude S., Schmidt H., Soelberg Sorensen P. , Blinkenberg M. , Siebner H.R. 2012, Quantification of independent spinal cord atrophy measures correlate to motor and sensory deficits in multiple sclerosis, in proc. ECTRIMS, 28, p. 869, (Poster)

Lundell H, Sønderby C., Vejby Søgaard, L, Dyrby TB., DTI using modulated gradients at short effective diffusion times, 2012, in proc. ISMRM, 20, p.355, (Oral)

Sønderby C., **Lundell H**, Dyrby TB., Assessing exchange between multiple compartments using multi-directional double wave diffusion sequences, 2012, in proc. ISMRM, p.352, (Oral)

Lyksborg M., **Lundell H**, Reislev N., Siebner H., Larsen R., Dyrby TB, Correcting geometric distortions of Echo Planar Imaging using demons and reversed phase encoding, 2012, in proc. ISMRM, 20, p.2578, (Poster)

Zang H., Barazany Y.A., **Lundell H**, Alexander D. C., Dyrby T.B., A comparative study of axon diameter imaging techniques using diffusion MRI, 2011, in proc. ISMRM, 19, p. 83, (Poster)

Dyrby T.B., **Lundell H**, Liptrot M. G., Burke M. W., Maurice P., Siebner H., Interpolation of DWI prior to DTI reconstruction, and its validation, 2011, in proc. ISMRM, 19, p. 1917, (Poster)

Lundell H, Barthelemy, D, Skimminge, A, Biering-Sørensen, F, Nielsen, J B. Independent spinal cord atrophy measures correlate to motor and sensory deficits

in individuals with spinal cord injury, 2010, in. proc. ISMRM, 18, p. 446, (Oral)

Schneider T, **Lundell H**, Dyrby T B, Alexander D C, Wheeler-Kingshott C A, 2010, Optimized diffusion mri protocols for estimating axon diameter with known fibre orientation. in proc. ISMRM, 18, p. 1561, (Poster)

Lundell H, Cohen-Adad J. Point spread function mapping for distortion correction of spinal cord diffusion weighted mri, in. proc. ISMRM 2009, 17, p. 1307, (Poster)

Lundell H, Dyrby T, Ptito M, Nielsen JB, 2009, Crossing fibers in lateral white matter of the cervical spinal cord detected with diffusion mri in monkey post mortem. in proc. ISMRM, 17, p. 1497, (Poster)

Cohen-Adad J, **Lundell H**, Rossignol S, 2009, Distortion correction of spinal cord dti: what's the best approach? in proc. ISMRM, 17, p. 3600, (Poster)

Lundell H, Ptito M, Nielsen J B, Dyrby T B, 2009, Cervical corticospinal terminations visualized with diffusion mri in the monkey spinal cord in vitro. in proc. OHBM, 15, p.284, (Poster)

True H, Hansen T G, **Lundell H**, 2005, On quasi-stationary curving dynamics of a railway bogi. In proc. 6th International conference on Structural dynamics, 2, p1517-22, (Oral, conference paper)