



Jeroen Van Schependom

Curriculum Vitae

Cognitive impairment affects about half of all individuals with multiple sclerosis (MS). However, the exact impact of MS on cognitive function remains poorly understood, and effective treatments are limited. My team is dedicated to uncovering the neurophysiological processes behind both normal and impaired cognitive functioning, leveraging the latest advances in transient brain networks. Additionally, we are pioneering non-invasive neuromodulation treatments to address cognitive impairment in MS. Tackling these complex questions requires a robust interdisciplinary team, and I am proud to lead a group of experts that includes biomedical and electronic engineers, neurologists, and rehabilitation physicians.

Personalia

Nationality Belgian

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Experience

- 2024-Present **Tenured Research Professor (Hoofddocent)**, VUB.
- 2022-Present **Elected member of the Jonge Academie**.
- 2021-2023 **Fellow of EUTOPIA Young Leadership Academy**, VUB.
- 2021-2022 **Sidekick Vice Rector Research and Development**, VUB.
- 2020-Present **Vice Chair AI Supported Modelling in Clinical Sciences (AIMS)**, VUB.
- 2019-2024 **Research Professor (Docent)**, Vrije Universiteit Brussel.
- 2018-2019 **Secretary**, Scientific steering group National MS Centre Melsbroek.
- 2019-2019 **Visiting Researcher**, Computational Neuroscience Group, UPF Barcelona.
- 2016-2019 **FWO Post-Doc**, Vrije Universiteit Brussel, Center for Neurosciences.
- 2016-2017 **Visiting Researcher**, University of Oxford, Oxford Centre for Human Brain Activity.
- 2014-2016 **Internship**, IcoMetrix NV, R&D.
- 2012-2016 **FWO Aspirant (PhD candidate)**, Vrije Universiteit Brussel - UMONS, Center for Neurosciences-Faculté de Psychologie et des sciences de l'Education.
- 2011-2012 **PhD candidate**, UMONS, Faculté de Psychologie et des sciences de l'Education.

PhD Thesis

Joint PhD - Vrije Universiteit Brussel - Université de Mons

- Title **Cognitive Impairment in MS: Statistical and Neurophysiological aspects**
- Supervisors Prof. Dr. Marie-Claire Haelewyck, Prof. Dr. Marie B D'hooghe, Prof. Dr. Jacques De Keyser & Prof. Dr. ir. Guy Nagels
- Description This thesis assessed the evolution of cognitive impairment in MS and explored the possibility of using EEG as a biomarker for this cognitive decline using advanced classification schemes.
- Defended on 5 May 2015

Supervision

My Ph.D. students have received significant peer recognition: Thomas Scheinok presented an oral presentation at the American Academy of Neurology (2024, Denver) and received an International Scholarship to attend the annual meeting of the AAN in San Diego (2025), Fahimeh Akbarian won the Abstract merit award at OHBM (Montreal, 10 awards across > 2000 poster submissions), and Chiara Rossi was invited for an oral presentation at the conference of the Organisation of Human Brain Mapping (Glasgow 2022) and presented her work at OHBM-Seoul during the symposium I organised.

Ongoing **Supervisor, VUB-Faculty of Engineering.**

- PhDs
- Fahimeh Akbarian, E-I inhibition ratio in neurodegenerative diseases
 - Gaia Zin, Leveraging neurocomputational models to extract a novel biomarker of information processing speed in MS
 - Hanieh Ghaempanah, Optimisation of tDCS to enhance brain perfusion in MS

Ongoing **Supervisor, VUB-Faculty of Medicine and Pharmaceutical sciences.**

- PhDs
- Thomas Scheinok, Neurology registrar, Development of novel neuromodulation paradigms to enhance remyelination.
 - Kristien Cool, Restoring brain perfusion in MS
 - Olivier D Burta, Brain dynamics of information processing speed in MS
 - Mathieu Grognaard, Development of novel neuromodulation paradigms to enhance remyelination.

Co-supervisor, VUB-Faculty of Medicine and Pharmaceutical Sciences.

- Delphine Van Laethem, Cognitive-motor telerehabilitation in multiple sclerosis

Defended **Supervisor, VUB-Faculty of Medicine and Pharmaceutical sciences.**

16/01/2025 **Chiara Rossi**, *Unravelling the fast transient network dynamics of the event-related brain response underpinning executive functions.*

Defended **Co-supervisor, VUB-Faculty of Medicine and Pharmaceutical Sciences, Defended.**

30/01/2024 **Stijn Denissen**, *Structural brain damage and cognition in MS: an AI approach.*

30/03/2023 **Johan Baijot**, *Neurophysiological aspects of cognitive deterioration in multiple sclerosis.*

27/04/2021 **Lars Costers**, *An MEG investigation into working memory.*

24/09/2018 **Jeroen Gielen**, *MRI measures in the assessment of cognitive function in MS.*

18/09/2017 **Jorne Laton**, *Machine learning techniques to improve the value of neurophysiological measurements for individual patients.*

Master theses **Supervisor.**

I have supervised over 20 Master thesis students within different educational tracks (Medicine, Biomedical Engineering, Biomedical Sciences, Applied Computer Sciences). Among those, Eva Keytsman (MD) was able to do an internship in VU Amsterdam (Bob van Oosten) and presented her results at IMSCOGS-Bern (2024). Further, Olivier Burta (Biomedical Engineering) is translating his thesis results into his first paper.

Education

- 2020 **FELASA - Cat C**, *UGent*.
- 2019 **Certificate of Good Clinical Practice**, *UZ Leuven*.
- 2011–2015 **Joint PhD**.
 - Medical Sciences, VUB, Brussels
 - Psychological Sciences, UMONS, Mons
- 2009–2011 **Master of Science in Engineering Physics**, *UGent*, Ghent.
Highest distinction
- 2006–2009 **Bachelor of Science in Engineering Physics**, *UGent*, Ghent.
High distinction
- 2001–2006 **Greek-Mathematics**, *Sint-Jozef-Klein-Seminarie*, Sint-Niklaas.
Highest distinction
- 2011–2015 **Workshops**.
 - 2015 - MEG workshop - Oxford Centre for Human Brain Activity (OHBA)
 - 2012 - EEGlab workshop - Tsingua University - Beijing
 - 2012 - SPM8 workshop - University College London
- 2011–2015 **PhD Training**, *Vrije Universiteit Brussel/UMons*.
Project planning, Presentation Skills
- 2011–2015 **Extra Courses**.
 - Datamining and machine learning (KULeuven, prof. J Suykens)
 - Least-Squares Support Vector Machines (KULeuven, prof. J Suykens)
 - Statistical Foundations of Machine Learning (VUB/ULB, prof. G. Bontempi)
 - Coursera.org: Statistical analysis of fMRI data (Prof. Martin Lyndquist), Machine Learning (Prof. Andrew Ng), Computing for Data Analysis (Prof. Roger Peng), Computational Neuroscience (Prof. Rajesh Rao)
- 2010–2011 **Extra Courses**, *UGent*, Ghent.
Group Theory, NMR
- 2010–2010 **7th International Esarda course: Nuclear safeguards and non-proliferation**, *Joint Research Center Ispra*, Italy.
- 2009–2010 **Erasmus**, *Universidad Complutense de Madrid*, Madrid.

Honours/Awards/Grants

- Supervisor **2024 - Oral presentation at American Academy of Neurology (Denver)**
Transcranial Alternating Current Stimulation as a Potential Remyelination Therapy for MS - Thomas Scheinok

- 2023 - Abstract merit award** awarded to Fahimeh Akbarian at OHBM 2023 Montreal
- 2022 - Oral presentation** by Chiara Rossi at the 2022 OHBM Glasgow meeting
- Promotor **2024 - FWO aspirant** - Transient brain network dynamics underlying information processing speed in multiple sclerosis (Olivier Burta; 200k)
- 2023 - Flanders Research Foundation:**FWO-Project - Transcranial direct current stimulation as a new, personalised add-on treatment for regional brain perfusion in people with MS (566 500 EUR)
- 2023 - EUTOPIA:** Leveraging neurocomputational models to extract the intracerebral conduction velocity as a novel non-invasive marker of information processing speed in multiple sclerosis., 200k; Joint Ph.D. project with Cergy (Thanos Manos)
- 2022 - Belgian Charcot Foundation:** Disentangling cognitive functioning and visual scanning deficits in cognitive test results in MS, 45k EUR
- 2022 - Innoviris:** DetectDem - A novel test strategy to follow up patients at risk of developing dementia, 1.2M EUR
- 2020 - Flanders Research Foundation:**FWO-Project (G042821N) - Prolonged transcranial alternating current stimulation leveraging new stimulation paradigms and set-ups as a treatment to promote remyelination in cuprizone treated mice (492.250 EUR)
- 2020 - VUB:**IOF PoC: aSOMI - a State of Minds Interface (68.151 EUR)
- 2020 - FWO Aspirant:** Chiara Rossi (11K2821N) - Unravelling cognitive functioning in healthy and multiple sclerosis through the analysis of transiently bursting brain networks at milliseconds time scale
- 2019 - Belgian Charcot Foundation:** Application of transcranial Alternating Current Stimulation to enhance remyelination (39.000 EUR)
- Awards **2019 - Marie Curie Individual Fellowship** - Seal of Excellence
- 2018 - Belgian Neurological Society** - Research Prize 2018
- 2017 - Flanders Research Foundation** - Krediet aan Navorsers (38.300 EUR)
- 2016 - Flanders Research Foundation** - Postdoc: How brain structure influences brain functioning, a mechanistic model to improve our understanding of cognitive impairment in Multiple Sclerosis
- 2011 - Flanders Research Foundation** - Research scholarship (FWO-Aspirant): On the neurophysiology of cognitive deterioration in Multiple Sclerosis
- Co-promotor **2024 - FWO Postdoctoral Fellowship** - Leveraging recent advances in explainable AI to decode cognitive functioning from T1/FLAIR weighted MR images in MS - An international federated learning approach (Stijn Denissen; 300k)
- 2021 - FWO aspirant** - Telerehabilitation in MS (Delphine Van Laethem; 200k)
- 2021 - FWO Postdoctoral fellowship** - Development of a neurovascular coupling biomarker for cognitive impairment in MS by a novel multimodal data fusion framework (Frederik Van de Steen; 300k)

2020 - Innoviris - Joint R&D - Data governance in the development of machine learning algorithms to predict neurodegenerative disease evolution

2019 - VLAIO - Creating the MS compass of the future: imaging AI to predict disease progression. Stijn Denissen; 200k

2017 - Flanders Research Foundation - Research scholarship (FWO-Aspirant): Lars Costers, 200k

2014 - Belgian Charcot Foundation: Graph-theoretical analysis of magnetoencephalographic recordings as biomarker for cognitive deterioration in Multiple Sclerosis (37.000 EUR)

2014 - Genzyme-Sanofi: Graph-theoretical analysis of magnetoencephalographic recordings as biomarker for cognitive deterioration in Multiple Sclerosis (430.000 EUR)

Travel Grants **Flanders Research Foundation** - Six month research stay at University of Oxford
- Six month research stay at Universitat Pompeu Fabra - European Science Open Forum

ECTRIMS - Based on paper merit

Computer skills

Matlab, R, Python, Linux, SPM, EEGLab, PsychToolbox

Communication Skills

- 2025 **Scheduled Invited Talk:** "Neural dynamics across spatiotemporal scales - applications to MS " - Dynamics Days Europe 2025, Thessaloniki
- 2024 **Oral presentation:** "Studienamiddag: Is Open Science de doos van Pandora voor Jonge Onderzoekers? " - Koninklijke Vlaamse Academie van Belgie, Brussel, Belgium
- 2024 **Invited Talk:** "Artificial Intelligence will change cognitive MS care within the next 10 years: No " - International MS Cognition Society, Bern, Switzerland
- 2024 **Invited Talk:** "Large Language Models vs Natural Language" - AI Conversations, Vrije Universiteit Brussel, Brussels, Belgium
- 2023 **Invited Talk:** "Artificial Intelligence will change neurorehabilitation within the next 10 years: No " - Presentation for the Belgian Society of Neurorehabilitation, Brussels, Belgium
- 2023 **Invited Talk:** "Non-invasive Brain Stimulation Simulations " - Workshop on in silico-health, Leuven, Belgium
- 2023 **Invited Talk:** "Artificial Intelligence will change MS care within the next 10 years: No " - Presentation at the Royal Belgian Academy of Medicine, Brussels, Belgium
- 2021 **Invited Talk:** "Exploring the potential of non-invasive neuromodulation in multiple sclerosis " - Regional Chapter Meeting van de Benelux Neuromodulation Society, Paris, France
- 2016 **Invited Talk:** "Brain atrophy in Multiple Sclerosis" - 12th Workshop of the International School of Magnetic Resonance and Brain Function, Erice, Sicily

- 2016 **Invited Talk:** "From neuronal firing to whole-brain cortical networks - Application to MS" - 12th Workshop of the International School of Magnetic Resonance and Brain Function, Erice, Sicily
- 2013 **Oral Presentation** at the 2nd International Conference of the MS Cognition Society (IMSCOGS), Zürich, Switzerland
- 2011–Present Many oral presentations in an informal setting to a variety of audiences
- 2011–Present Posters at several conferences (Engineering, Psychology, Medical)

Symposia organisation

- 2024 Organiser of the symposium entitled **"Functional Connectivity Dynamics"** with co-organizers Diego Vidaure, Helen Zhou, and Vince Calhoun for the **2024 Human Brain Mapping Conference** in Seoul, Korea
- OHBM is the primary international organization dedicated to neuroimaging. Each year, approximately 3,000 attendees gather together to attend top-notch scientific education, share their latest research, and discover new collaborations. In this symposium, we presented recent developments in how we look at FC and how we can leverage these developments to yield more insights into how cognition arises in healthy controls and how it is impaired in people with neurodegenerative diseases.
- Speakers:** Chiara Rossi (VUB), Armin Iraj (Georgia State University), Xing Qian (National University of Singapore), Chetan Gohil (University of Oxford)
- 2023 Organisation of an EUTOPIA EEG/MEG symposium with Ralph Adrzejak (UPF), Christian Beste (TU Dresden), and Kris Baetens (VUB) - 3-May-2015
- 2022 YLA symposium **Impact in Research** with several keynote speakers, including Angelica Marino (Policy Analyst DG Research and Innovatino at the European Commission), Angela Liberatore, (Head of the scientific management department at ERC) and Monica Dietl (research director of the French National Centre for Scientific research).

Teaching

- 2019–2020 **Erasmus Mundus programme, *Neurasmus***, Charité-Universitätsmedizin.
- Neurophysiological signal processing
- 2015–Present **Faculty of Medicine and Pharmaceutical Sciences (VUB).**
- Cellular Neurophysiology. Partim. Chemical and electrical communication
 - New therapeutic approaches to disorders of the central nervous system
 - Medical information and communication systems
 - Capita selecta voor de ziekenhuisarts, inclusief praktische oefeningen (co-titularis) - 3u HOC - ManaMa in de Specialistische Geneeskunde.
- 2015–Present **Faculty of Engineering - Master Biomedical engineering (VUB-UGent).**
- Modeling of physiological systems
 - Measurements and analysis of biomedical signals
 - Neurophysiological signal processing and graph network analysis
 - Computational Neurophysiology

Languages

Mother tongue **Dutch**

Fluent **English**
French
Basic **German, Spanish**

ITACE C1 level

Level: B1, B2

Interests

Piano, Volleyball, Running

Reviewing duties

- 2023 I have served as a panel member (LS7) for the University Of Ljubljana
- 2012-Present I have served as a reviewer for *UK Research and Innovation, UK MS Society, Communications Biology, Frontiers in Systems Neuroscience, Brain Communications, , Brain Connectivity, Movement Disorders, Sensors, Neuroprotection, Computers in Biology and Medicine, Eye and Brain, Molecular Psychiatry, Brain, Journal of Clinical Medicine Clinical Neurology and Neurosurgery, Journal of Alzheimer's Disease, Neuropsychological rehabilitation, Neurotherapeutics, NeuroImage, NeuroImage: Clinical, Multiple Sclerosis Journal, Brain and Behaviour, International Journal of Molecular Sciences, PLOS ONE, European Journal of Neurology, International Journal of Medical Informatics, Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy, Archives of clinical neuropsychology, Journal of Medical Imaging and Health Informatics, Journal of the Neurological Sciences* and the Italian Ministry of Education, University and Research.

I have been a jury member in the PhD defenses of Tatjana Reynders (VUB), Lindsey De Volder (VUB), Nora Vanderleen (ULiege), Ine Dirks (VUB), Pieter Boonen (VUB), Jolan Heyse (UGent)

Outreach

- Scheduled Kunnen we onze hersenen beter later werken met een extra batterij? - Lucernacollege Gent
- 2024 Kunnen we onze hersenen beter later werken met een extra batterij? - Da Vinci School Sint Niklaas
- 2020- For an overview, see <https://aims.research.vub.be/en/blog> and <https://aims.research.vub.be/nl/blog>
- 2018 EOS-blog: De elementaire deeltjes van ons denken (2018-01-10), <https://www.eoswetenschap.eu/psyche-brein/de-elementaire-deeltjes-van-ons-denken>
- 2016 MS-symposium. Wat is het nut van beeldvorming van de hersenen in MS?
- 2016 International MS organisation (IMSO) - Jaargang 37, Nr. 3; Het opvolgen en opmeten van cognitieve achteruitgang tgv Multiple Sclerose - Een multidisciplinaire aanpak.
- 2014 Interview by EOS (Belgian popularising science journal).
- 2014 Interview by CM (A Belgian Health Insurance Company).

Book Chapters

- 2023 Denissen S; Van Schependom, J; Nagels, G **Medische diagnose en een nieuwkomer: artificiële intelligentie**, <https://www.aspeditions.be/en/book/een-vraag-naar-waarheid/19326>

Papers under review

- 2024 Denissen, S; Grothe, M; Vaneckova, M; Uher, T; Laton, J; Kudrna, M; Horakova, D; Kirsch, M; Motyl, J; De Vos, M; Chen, O; Van Schependom, J; Sima, D; Nagels, G **Federated learning for brain image decoding in multiple sclerosis**, Under review
- 2020 Sjogard M, Bourguignon M, Costers L, Dumitrescu A, Coolen T, Roshchupkina L, Destoky F, Bertels J, Niesen M, Vander Ghinst M, Van Schependom J, Nagels G, Urbain C, Peigneux P, Goldman S, Woolrich M, De Tiege X, Wens V, **Intrinsic/extrinsic duality of large-scale neural functional integration in the human brain**, <https://doi.org/10.1101/2020.04.21.053579>

Full list of peer-reviewed publications

- 2024 Denissen, S; Van Laethem, D; Baijot, J; Costers, L; Descamps, A; Van Merhaegen - Wieleman, A; D'hooghe, MB; D'haeseleer, M; Smeets, D; Sima, D; Van Schependom, J; Nagels, G **icognition: a smartphone-based cognitive screening battery**, Accepted at Journal of Medical Internet Research
- 2024 Rossi, C; Vidaurre D; Costers L; Akbarian F; Woolrich M; Nagels G; Van Schependom J **Impaired activation of the prefrontal executive network during working memory processing in multiple sclerosis**, Accepted at Communications Biology
- 2024 Van Schependom J; Baetens K; Nagels G; Olmi S; Beste C **Neurophysiological avenues to better conceptualizing adaptive cognition**, Accepted at Communications Biology
- 2024 Akbarian, F; Rossi C; Costers L; D'hooghe MB; D'haeseleer M; Nagels G; Van Schependom J **Stimulus-related modulation in the 1/f spectral slope suggests an impaired inhibition in people with multiple sclerosis**, Accepted at MSJ
- 2024 De Troyer, M; Van Remoortel, A; Van Schependom, J; Dellafaille, L; D'hooghe, MB; Peeters, GJ; Nagels, G; D'haeseleer, M **Clinical effectiveness of coronavirus disease 2019 vaccination in patients with multiple sclerosis stratified by disease-modifying treatment**, European Journal of Neurology, Accepted
- 2023 Van Laethem, D; Denissen, S; Costers, L; Descamps, A; Baijot, J; Van Remoortel, A; Van Merhaegen - Wieleman, A; D'hooghe, MB; D'haeseleer, M; Smeets, D; Sima, D; Van Schependom, J; Nagels, G **The Finger Dexterity Test: validation study of a smartphone-based manual dexterity assessment**, Multiple Sclerosis, 2023 Dec 23:13524585231216007
- 2023 Rossi, C; Vidaurre D; Costers L; Akbarian F; Woolrich M; Nagels G; Van Schependom J **A novel description of the network dynamics underpinning working memory**, Communications Biology (IF: 6.5), 6(1): 1079

- 2023 Lathouwers E1, Radwan A, Blommaert J, Stas L, Tassignon B, Allard S.D., De Ridder F, De Waele E, Hoornaert N, Lacor P, Mertens R, Naeyaert M, Raeymaekers H, Seyler L, Van Binst AM, Van Liedekerke L, Van Schependom J, Van Schuerbeek P, Provyn S, Roelands B, Vandekerckhove M, Meeusen R, Sunaert S, Nagels G, De Mey J, De Pauw K **A cross-sectional case-control study on the structural connectome in recovered hospitalized COVID-19 patients**, *Scientific Reports*, 13(1):15668
- 2023 Akbarian, F; Rossi C; Costers L; D'hooghe MB; D'haeseleer M; Nagels G; Van Schependom J **The spectral slope as a marker of excitation/inhibition ratio and cognitive functioning in multiple sclerosis**, *Human Brain Mapping (IF:5.4)*, 44(17):5784-5794
- 2023 De Cock, A; Van Ranst A; Costers L; D'hooghe MB; D'haeseleer MB; Nagels G; Van Schependom J **Alpha power as an independent marker of reduced information processing speed in multiple sclerosis**, *European Journal of Neurology (IF: 6.1)*, 30(9):2793-2800
- 2023 Scheinok TJ; D'haeseleer M; Nagels G; De Bundel D; Van Schependom J **Neuronal activity in developmental myelination and remyelination – current state of knowledge**, *Progress of Neurobiology, IF: 14.6*, 226:102459
- 2023 Van Schependom J; D'haeseleer M **Advances in Neurodegeneration**, *Journal of Clinical Medicine*, Feb 21; 12(5): 1709
- 2023 Peeters GJ; Van Remoortel A; Nagels G; Van Schependom J; D'haeseleer M **Occurrence and severity of the coronavirus disease of 2019 are associated with disability worsening in patients with multiple sclerosis**, *Neurology: Neuroimmunology & Neuroinflammation*, IF: 8.5 [Q1] in press
- 2023 B Tassignon, A Radwan, J Blommaert, L Stas, SD Allard, F De Ridder, E De Waele, LC Bulnes, N Hoornaert, P Lacor, E Lathouwers, R Mertens, M Naeyaert, H Raeymaekers, L Seyler, AM Van Binst, L Van Imschoot, L Van Liedekerke, J Van Schependom, P Van Schuerbeek, M Vandekerckhove, R Meeusen, S Sunaert, G Nagels, J De Mey, K De Pauw **Longitudinal changes in global structural brain connectivity and cognitive performance in former hospitalized COVID-19 survivors: an exploratory study**, *Experimental Brain Research* ,IF: 2
- 2023 Baijot, J; Van Laethem D; Denissen S; Costers L; Cambron M; D'haeseleer M; D'hooghe MB; Vanbinst AM; De Mey, J; Nagels G; Van Schependom J **Radial diffusivity reflects general decline rather than specific cognitive deterioration in multiple sclerosis**, *Scientific Reports*, in press
- 2022 De Vos, M; Van Schependom J **Artificial Intelligence will change MS care in the next 10 years: NO**, *Multiple Sclerosis Journal* , 28(14):2173-2174
- 2022 Pauwels A, Van Schependom J, Devolder L, Van Remoortel A, Nagels G, Bjerke M, D'hooghe MB. **Plasma glial fibrillary acidic protein and neurofilament light chain in relation to disability worsening in multiple sclerosis**. *Mult Scler.* 2022 Oct;28(11):1685-1696. doi: 10.1177/13524585221094224. Epub 2022 May 21.

- 2022 Laton J; Van Schependom J; Goossens J, Wiels W, Sieben A, De Deyn PP, Goeman J, Streffer J, van der Zee J, Martin JJ, Van Broeckhoven C, De Vos M, Bjerke M, Nagels G; Engelborghs S, **Improved Alzheimer's disease versus frontotemporal lobar degeneration differential diagnosis combining EEG and neurochemical markers**, *J Alzheimers Dis.* 2022;90(4):1739-1747. doi: 10.3233/JAD-220693.
- 2022 Van Laethem D; Van de Steen F; Kos D; Naeyaert M; Van Schuerbeek P, D'haeseleer M; D'hooghe MB; Van Schependom J, Nagels G **Cognitive-motor telerehabilitation in multiple sclerosis (CoMoTeMS): study protocol for a randomised controlled trial**, *Trials* , 23(1): 1-10
- 2022 Van Laethem D; De Cock A; Van Schependom J; Benedict RHB; Nagels G; D'hooghe MB **Correlates of patient-reported cognitive performance with regard to disability**, *Scientific Reports* , 12(1): 1-8
- 2022 Denissen S; Engemann DA, De Cock, A; Costers L; Baijot J; Laton J; Penner, IK; Grothe, M; Kirsch M; D'hooghe MB; D'haeseleer MB; Dive D; De Mey, J; Van Schependom J; Sima, DM; Nagels G **Brain age as a surrogate marker of cognitive performance in multiple sclerosis**, *European journal of neurology* , 29(10): 3039-3049
- 2022 Sadeghi, N; Eelen, P; Nagels, G; Cuvelier C; Van Gils K; D'hooghe MB; Van Schependom J; D'haeseleer M **Innovating care in multiple sclerosis: feasibility of synchronous internet-based teleconsultation for longitudinal clinical monitoring**, *Journal of Personalized Medicine* , 12(3):433
- 2022 Temmerman J, Van Der Veken, F; Engelborghs, S; Gudolf, K; Nagels, G; Smeets, D; Allemeersch GJ; Costers L; D'hooghe MB; Vanbinst AM; Van Schependom J; Bjerke M; D'haeseleer, M; **Brain Volume Loss Can Occur at the Rate of Normal Aging in Patients with Multiple Sclerosis Who Are Free from Disease Activity**, *Journal of Clinical Medicine* , 11(3):523
- 2021 Denissen S; Chen, OY; De Mey, J; De Vos, M; Van Schependom J; Sima, D; Nagels G; **Towards multimodal machine learning prediction of individual cognitive evolution in multiple sclerosis**, *Journal of Personalised Medicine* , 11(12):1349
- 2021 Van Schependom J, Vidaurre D, Costers L, Sjogard M, Sima D, Smeets D, D'hooghe MB, D'haeseleer M, Deco G, Wens V, De Tiège X, Goldman S, Woolrich M; Nagels G; **Increased brain atrophy and lesion load is associated with stronger lower alpha MEG power in multiple sclerosis patients**, *NeuroImage Clinical* , 30:102632
- 2021 Baijot J, Denissen S, Costers L, Gielen J, Cambron M, D'haeseleer M, D'hooghe MB, Vanbinst AM, De Mey J, Nagels G, Van Schependom J **Signal quality as Achilles' heel of graph theory in functional magnetic resonance imaging in multiple sclerosis**, *Scientific Reports* , 11(1):7376
- 2021 Sjogard M; Wens V; Van Schependom J; Costers L; D'hooghe MB; D'haeseleer M; Woolrich M; Goldman S; Nagels G; Detiege X **Brain dysconnectivity relates to disability and cognitive impairment in multiple sclerosis**, *Human Brain Mapping*, 2021 Feb 15; 42(3):626-643, IF:4.9 [Q1]

- 2020 Costers L; Van Schependom J; Baijot J; Sjogard M; Wens V; Detiege X; Goldman S; D'haeseleer M; D'hooghe MB; Woolrich M; Nagels G; **The role of hippocampal theta oscillations in working memory impairment in multiple sclerosis**, *Human Brain Mapping*, 2020 Nov 28, IF:4.9 [Q1]
- 2020 D'haeseleer M; Eelen P; Sadeghi N; D'hooghe MB; Van Schependom J; Nagels G **Feasibility of real-time internet-based teleconsultation in patients with multiple sclerosis: a pilot study**, *Journal of Medical internet research*, 22(8), e18178, IF:5.1 [Q1]
- 2020 Costers L; Van Schependom J; Laton J; Baijot J; Sjogard M; Wens V; Detiége X; Goldman S; D'haeseleer M; D'hooghe MB; Woolrich M; Nagels G **Spatiotemporal and spectral dynamics of multi-item working memory as revealed by the n-back task using MEG**, *Human Brain Mapping*, 41(9), 2431-2446, IF:4.9 [Q1]
- 2019 Van Schependom J; Guldof K; Nagels G; D'haeseleer M **Detecting neurodegenerative pathology in multiple sclerosis before irreversible brain tissue loss sets in**, *Translational Neurodegeneration*, 8 (37), IF:5.9 [Q1]
- 2019 Denissen S; De Cock A; Meurrens T; Vleugels L; Van Remoortel A; Gebara B; D'haeseleer M; D'hooghe MB; Van Schependom J; Nagels G; **The impact of cognitive dysfunction on locomotor rehabilitation potential in multiple sclerosis**, *Journal of Central Nervous System Disease*, Nov 6; 11:1179573519884041, IF:4.3 [Q1]
- 2019 Van Schependom J, Vidaurre, D; Costers L; Sjogard, M; D'hooghe, MB; D'haeseleer M; Wens, V; De Tiége, X; Goldman, S; Woolrich M; Nagels G; **Altered transient brain dynamics in multiple sclerosis: treatment or pathology?**, *Human Brain Mapping*, Nov 1; 40(16): 4789-4800, IF:4.9 [Q1]
- 2019 Sjogard M; De Tiége X; Mary A; Peigneux P; Goldman S; Nagels G; Van Schependom J; Quinn AJ; Woolrich MW, Wens V **Do the posterior midline cortices belong to the electrophysiological default-mode network?**, *Neuroimage*, 2019 Jun 22; 200:221-230 IF:5.4 [Q1]
- 2018 Van Schependom J, Niemantsverdriet E, Smeets D, Engelborghs S; **Callosal circularity as an early marker for Alzheimer's disease**, *NeuroImage-Clinical*, 19 516-526, IF:4.4 [Q1]
- 2018 Gielen J, Wiels W, Van Schependom J, Laton J, Van Hecke W, Parizel P, D'hooghe MB, Nagels G **The effect of task modality and stimulus frequency in paced serial addition tests on functional brain activity**, *PLOS-One*, 13(3), e0914388, IF: 2.8 [Q1]
- 2017 Van Schependom J, Nagels G; **Targeting cognitive impairment in MS - the road towards an imaging-based biomarker**, *Frontiers in Neuroscience - Brain Imaging Methods*, Oct, IF: 3.7 [Q1]
- 2017 Van Schependom J, Gielen J, Laton J, Sotiropoulos G, Vanbinst AM, De Mey J, Smeets D, Nagels G; **The effect of morphological and microstructural integrity of the corpus callosum on cognition, fatigue and depression in mildly disabled MS patients**, *Magnetic Resonance Imaging*, Oct, IF: 2.2 [Q1]

- 2017 Costers L, Gielen J, Eelen P, Van Schependom J, Laton J, Van Remoortel A, Vanzeir E, Van Wijmeersch B, Seelldrayers P, Haelewyck MC, D'Haeseleer M, D'hooghe MB, Langdon D, Nagels G; **Does including the full CVLT-II and BVM-T-R improve BICAMS? Evidence from a Belgian (Dutch) validation study**, *Multiple Sclerosis and related disorders*, 18:33-40, IF:2.5 [Q1]
- 2017 Goossens J, Laton J, Van Schependom J, Gielen J, Struyfs H, Van Mossevelde S, Van den Bossche T, Goeman J, De Deyn PP, Sieben A, Martin JJ, Van Broeckhoven C, van der Zee J, Engelborghs S, Nagels G; **EEG dominant peak frequency differentiates between Alzheimer's disease and frontotemporal lobar degeneration**, *Journal of Alzheimer's Disease*, 55(1):53-80, IF:3.8
- 2016 Van Schependom J, Jain S, Cambron M, Vanbinst AM, De Mey J, Smeets D, Nagels G; **Reliability of measuring regional callosal atrophy in neurodegenerative diseases**, *NeuroImage: Clinical*, Oct, IF: 4.3 [Q1]
- 2015 Van Schependom J, Weiping Y, Gielen J, Laton J, De Keyser J, De Hert M, Nagels G; **Do advanced statistical techniques really help in the diagnosis of the Metabolic Syndrome in patients treated with anti-psychotics?**, *Journal of Clinical Psychiatry*, Oct, IF: 5.5 [Q1]
- 2015 Van Schependom J, Gielen J, Laton J, Nagels G; **Assessing PML risk under immunotherapy: if all you have is a hammer, everything looks like a nail.**, *Multiple Sclerosis Journal*, Jul 21, IF: 4.5, 23/194 [Q1]
- 2014 Van Schependom J, D'hooghe MB, Cleynhens K, D'hooge M, Haelewyck MC, De Keyser J, Nagels G; **Reduced information processing speed as primum movens for cognitive decline in Multiple Sclerosis**, *Multiple Sclerosis Journal*, Jan 21(1): 83-91, IF: 4.5, 23/194 [Q1]
- 2014 Van Schependom J, D'hooghe MB, Cleynhens K, D'hooge M, Haelewyck MC, De Keyser J, Nagels G; **The Symbol Digit Modalities Test as sentinel test for cognitive impairment in MS**, *European Journal of Neurology*, Sep 21(9), pp 1219-1225, IF: 4.2, 36/149 [Q1]
- 2014 Van Schependom J, Gielen J, Laton J, D'hooghe MB, De Keyser J, Nagels G; **Graph theoretical analysis indicates cognitive impairment in MS stems from neural disconnection**, *NeuroImage: Clinical*, 4, pp 403-410, IF: 2.5 [Q1]
- 2014 Van Schependom J, D'hooghe MB, De Schepper M, Cleynhens K, D'hooge M, Haelewyck MC, De Keyser J, Nagels G; **Relative contribution of cognitive and physical disability components to quality of life in MS**, *Journal of the neurological sciences*, 336(1-2), IF: 2.8, 94/194 [Q1]
- 2014 Laton J, Van Schependom J, Gielen J, Decoster J, Moons T, De Keyser J, De Hert M, Nagels G; **Single-subject classification of schizophrenia patients based on a combination of oddball and mismatch evoked potential paradigms**, *Journal of the Neurological Sciences*, Dec 347(1-2):262-7, IF:2.24,
- 2014 Gielen J, Laton J, Van Schependom J, De Deyn PP, Nagels G; **The Squares test as a measure of hand function in Multiple Sclerosis**, *Clinical Neurology and Neurosurgery*, Aug, 123:55-60, IF:1.4

Peer-reviewed conference proceedings

- 2024 Nguyen Duc Kien, Fahimeh Akbarian, Jorne Laton, Sebastiaan Engelborghs, Jeroen Van Schependom, Nguyen Linh Trung, Guy Nagels; Value of periodic and aperiodic components in EEG power spectra to detect cognitive deterioration in neurological diseases, EUSPICO-2024 Lyon
- 2024 Quang Manh Doan, Tran Hiep Dinh, Nguyen Linh Trung, Truong Xuan Doan, Long Doan Dinh, Jorne Laton, Marc De Hert, Jeroen Van Schependom, Guy Nagels; Impact of a vision based smoothing filter on schizophrenia classification; EUSPICO-2024 Lyon
- 2014 Van Schependom J, Gielen J, Laton J, D'hooghe MB, De Keyser J, Nagels G; SVM aided detection of cognitive impairment in MS, *IEEE Conference Proceedings - 4th International Workshop on Pattern Recognition in NeuroImaging (PRNI)*, Tübingen
- 2013 Van Schependom J, D'hooghe MB, De Keyser J, Nagels G; Detection of Cognitive Impairment in MS based on an EEG P300 paradigm, *IEEE Conference Proceedings - 3rd International Workshop on Pattern Recognition in NeuroImaging (PRNI)*, Philadelphia, PA.