Res. Prof. Marie E. Rognes, PhD

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Education and Professional Career

2005	MSc in Applied Mathematics, University of Oslo (UiO), Norway
2009	PhD in Applied Mathematics/Numerical Analysis, UiO, Norway
2009-2012	Postdoctoral research fellow, Center for Biomedical Computing, Simula
2012-2013	Lecturer, Department of Informatics, UiO, Norway (part-time)
2012–2016	Senior Research Scientist, Simula, Norway
2015–2016	Associate Professor II, Department of Mathematics, UiO, Norway (20%)
2012–2016	Head of Biomedical Computing Department, Simula, Norway
2016–	Chief Research Scientist, Simula Research Laboratory, Oslo, Norway
2020–2022	Professor II, Department of Mathematics, University of Bergen, Norway (20%)
2022–2023	Visiting Scholar, University of California San Diego, La Jolla, CA, USA

Commitment, Appointments and Scientific Volunteer Jobs (selection)

- Associate editor/Editorial board member of: AIMS: Applied Mathematics for Modern Challenges (2022-), ESAIM: Mathematical Modelling and Numerical Analysis (M2AN) (2022-), SIAM Journal of Scientific Computing (SISC) (2020-), Journal of Open Source Software (JOSS) (2020-), Springer Nature Partial Differential Equations and Applications (2020-), BMC Fluids and Barriers of the Central Nervous System (2020-)
- Organization of a number of scientific conferences, workshops and minisymposia including e.g. ECCOMAS Congress 2022, 8th European Congress on Computational Methods in Applied Sciences and Engineering, Oslo, Norway (Young Investigators Initiative Chair), 2019 SIAM Conference on Computational Science and Engineering, Spokane, US (Scientific committee), 5th Cerebrospinal Fluid Dynamics Symposium, Simula Research Laboratory, Norway

Professional Awards, Offers and Recognitions (selection)

2022-	Member of the Norwegian Academy of Technological Sciences
2022	Fulbright Scholarship Award, U.S.-Norway Fulbright Foundation for Ed. Exchange.
2018	Royal Norwegian Society of Sciences and Letters Prize for Young Researchers within the Natural Sciences.
2016-2023	ERC Starting Grant (PE1 Mathematics): Mathematical and computational foundations for modelling cerebral fluid flow
2016-2019	RCN FRIPRO Young Research Talents Grant
2015	J. H. Wilkinson Prize for Numerical Software
2015-2019	Founding Member of the Young Academy of Norway
2015	Simula Research Award.

Most important Publications (maximum 10)
(Peer reviewed journal articles / books / patents)

[1]] K.-A. Mardal, M. E. Rognes, T. B. Thompson and L. M. Valnes. Mathematical modeling of the human brain: from magnetic resonance images to finite element simulation, Simula SpringerBriefs on Computing (2022)

[2] G. S. Brennan, T. B. Thompson, H. Oliveri, M. E. Rognes, A. Goriely. The role of clearance in neurode generative disease. https://doi.org/10.1101/2022.03.31.486533, 2022.

[3] A. J. Ellingsrud, D. B. Dukefoss, R. Enger, G. Halnes, K. Pettersen and M. E. Rognes. Validating a computational framework for ionic electrodiffusion with cortical spreading depression as a case study, eNeuro (https://doi.org/10.1523/ENEURO.0408-21.2022), 2022.

[4] A. J. Ellingsrud, N. Boullé, P. E. Farrell and M. E. Rognes. Accurate numerical simulation of electrodiffusion and water movement in brain tissue. IMA Mathematical Medicine & Biology, 2021

[5] C. Daversin-Catty, C. N. Richardson, A. J. Ellingsrud and M. E. Rognes. Abstractions and automated algorithms for mixed-dimensional finite element methods. ACM Transactions on Mathematical Software, 2021

[6] E. Piersanti, J. J. Lee, K.-A. Mardal, M. E. Rognes and T. Thompson. Parameter robust preconditioning by congruence for multiple-network poroelasticity. SIAM Journal on Scientific Computing, 2021

[7] K.-A. Mardal, M. E. Rognes and T. B. Thompson. Accurate discretization of poroelasticity without Darcy stability – Stokes-Biot revisited. BIT Numerical Mathematics, 2021.

[8] M. Croci, V. Vinje and M. E. Rognes. Uncertainty quantification of parenchymal tracer distribution using random diffusion and convective velocity fields. Fluids and Barriers of the CNS, 2019

[9] J. J. Lee, E. Piersanti, K.-A. Mardal and M. E. Rognes. A mixed finite element method for nearly incompressible multiple-network poroelasticity. SIAM Journal on Scientific Computing, 2019.

[10] P. E. Farrell, D. A. Ham, S. W. Funke and M. E. Rognes. Automated derivation of the adjoint of high-level transient finite element programs. SIAM Journal on Scientific Computing, 2013.