

CURRICULUM VITAE

MARIA TERES ELENIOUS

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EDUCATION:

- Ph.D., Department of Mathematics, University of Bergen, 2011
- M.S.E., Environmental Engineering, Uppsala University, 2001

WORK EXPERIENCE:

- Senior Researcher, Uni CIPR, August 2015 - present
- Postdoctoral Research Fellow, Civil and Environmental Engineering, Tufts University, April 2013 – June 2015
- Senior Researcher, Uni CIPR, 2011-2013
- Research Assistant, University of Bergen, 2008-2011, including 6 months at Stanford University
- Consultant, WSP Environmental, Karlskrona, 2001-2008

ADDITIONAL FORMATION

- Courses in project management, salesmanship and risk assessment of contaminated land, WSP Environmental, 2001-2008
- Research Assistant, University of Santiago de Chile, 2000 (2 months)
- Courses in physics, environmental geology and oceanography, University of Santiago de Compostela, 1998 (6 months)
- Course for environmental informers, University of Kalmar, 1998 (6 months)

PROFESSIONAL SERVICE:

- Chair, *Understanding the Impact of Interfaces*, Gordon-Kenan Graduate Research Seminar on Flow and Transport in Permeable Media, Girona, Spain, July 30-31, 2016
- Member, American Geophysical Union and Society for Industrial and Applied Mathematics
- Reviewer for *Advances in Water Resources*, *Water Resources Research*, *Transport in Porous Media*, *Society of Petroleum Engineers Journal*, *Journal of Porous Media* and *Chemical Engineering Journal*
- Sensor for University of Bergen, Department of Mathematics (various occasions)

GRANTS AND SCHOLARSHIPS:

- Awarded grant *Interaction between convective mixing, the capillary transition zone and mineral reactions*, Stanford University/The Petroleum Institute Abu Dhabi, 2014-2015, 50,000 USD, Lead Investigator
- Awarded grant *Geological storage of CO₂: Mathematical modeling and risk assessment, II*, Norwegian Research Council, 2012-2016, 20.4 million NOK, Co-Investigator
- Awarded a large number of consulting contracts with industry, municipalities and the county administrative board, Principal Investigator on awards up to 500,000 SEK, 2001-2008
- Awarded scholarship for research in Chile, 2000
- Awarded scholarship for studies in Spain, 1998

RESEARCH INTERESTS:

Dr. Elenius' research interests include environmental applications to multiphase and miscible porous media flow and reactive transport. Her work focuses on numerical and analytical modeling approaches that give new insights to the risk assessment and mitigation related to geological storage of carbon dioxide, and to remediation of contaminated groundwater. Dr. Elenius has 15 years combined experience from consulting and research in these topics. She got her PhD in Mathematics from the University of Bergen in 2011, with thesis "Convective mixing in geological carbon storage". In August 2015, she returned as a Senior Researcher to Uni Research CIPR, after completing a postdoctoral fellowship with Professor Linda Abriola at Tufts University in Boston.

PEER-REVIEWED PUBLICATIONS:

1. **Elenius, M.T.**, J.M. Nordbotten and H. Kalisch (2012) Effects of a capillary transition zone on the stability of density driven convection. *IMA Journal Applied Math*, 77, 771-787
2. **Elenius, M.T.** and K. Johannsen (2012) On the time scales on nonlinear instability in miscible displacement porous media flow, *Computational Geosciences*, 16, 901-911
3. **Elenius, M.T.** and S.E. Gasda (2013) Impact of tight horizontal layers on dissolution trapping in geological carbon storage. *Advances in Water Resources*, 62:499–510
4. **Elenius, M.T.**, J.M. Nordbotten and H. Kalisch (2014) Convective mixing influenced by the capillary transition zone, *Computational Geosciences*, 18, 417-431
5. **Elenius, M.T.**, D.V. Voskov and H.T. Tchelepi (2015) Interactions between gravity currents and convective dissolution, *Advances in Water Resources*, 83, 77-88
6. **Elenius, M.T.** and L.M. Abriola (in prep) Regressions for multi-rate mass transfer in heterogeneous media
7. **Elenius, M.T.**, S. Farshidi, D.V. Voskov and H.T. Tchelepi (in prep) Carbon dioxide reactive transport in presence of the capillary transition zone

OTHER PUBLICATIONS:

1. **Elenius, M.T.**, H.A. Tchelepi and K. Johannsen (2010) CO₂ trapping in sloping aquifers: High-resolution numerical simulations, XVIII International Conference on Water Resources
2. **Elenius, M.T.** and S.E. Gasda (2012) Impact of tight horizontal layers on dissolution trapping in geological carbon storage, XIX International Conference on Water Resources
3. **Elenius, M.T.**, J.M. Nordbotten and H. Kalisch (2012) Efficiency of dissolution trapping in geological carbon storage, 13 th European Conference on the Mathematics of Oil Recovery
4. **Elenius, M.T.** (2011) PhD thesis: Convective mixing in geological carbon storage, University of Bergen, Department of Mathematics
5. **Elenius, M.T.** (2001) Master thesis: Modeling of multiphase transport in gasoline contaminated soil (2001), Uppsala University

PRESENTATIONS:

- 3 conference proceedings
- 8 invited talks
- 13 presentations at international conferences