

LIST OF PUBLICATIONS – Massimo Rolle

Underlined are the names of supervised students and postdocs when first authors. The asterisk “*” marks the papers in which the applicant is corresponding author.

- **Rolle M***, and B. Jin (2017). Normal and inverse diffusive isotope fractionation of deuterated toluene and benzene in aqueous systems. *Environmental Science & Technology Letters* (IF=5.31), 4, 298-304.
- Ye Y., Chiogna G., Lu C. and **M. Rolle** (2017). Effect of anisotropy structure on plume entropy and reactive mixing in helical flows. *Transport in Porous Media* (IF=2.21), DOI: 10.1007/s11242-017-0964-3.
- Lee J., **Rolle M.** and P.K. Kitanidis (2017). Longitudinal dispersion coefficients for numerical modeling of solute transport in heterogeneous formations. *Journal of Contaminant Hydrology* (IF=2.01), DOI: 10.1016/j.jconhyd.2017.09.004.
- Chiogna G. and **M. Rolle** (2017). Entropy-based critical reaction time for mixing-controlled reactive transport. *Water Resources Research* (IF=4.40), 53, doi:10.1002/2017WR020522.
- Muniruzzaman M. and **M. Rolle*** (2017). Experimental investigation of the impact of compound-specific dispersion and electrostatic interactions on transient transport and solute breakthrough. *Water Resources Research* (IF=4.40), 53(2), 1189-1209, DOI: 10.1002/2016WR019727.
- Buchner D., Jin B., Ebert K., **Rolle M.**, Elsner M. and S.B. Haderlein (2017). Experimental determination of isotope enrichment factors – bias from mass removal by repetitive sampling. *Environmental Science & Technology* (IF=5.33), 105, 178-186, DOI: 10.1021/acs.est.6b03689. ES&T EDITOR’S CHOICE.
- Muniruzzaman M. and **M. Rolle*** (2016). Modeling multicomponent ionic transport in groundwater with IPhreeqc coupling: Electrostatic interactions and geochemical reactions in homogeneous and heterogeneous domains. *Advances in Water Resources* (IF=3.42), 98, 1-15, DOI: 10.1016/j.advwatres.2016.10.013.
- Jin B. and **M. Rolle*** (2016). Joint interpretation of enantiomer and stable isotope fractionation for chiral pesticides degradation. *Water Research* (IF=5.99), 105, 178-186, DOI: 10.1016/j.watres.2016.08.057.
- Ye Y., Chiogna G., Cirpka O.A., Grathwohl P. and **M. Rolle*** (2016). Experimental investigation of transverse mixing in porous media under helical flow conditions. *Physical Review E* (IF=2.25), 94, 013113, DOI: 10.1103/PhysRevE.94.013113.
- Jin B. and **M. Rolle** (2016). Position-specific isotope modeling of organic micropollutants transformation through different reaction pathways. *Environmental Pollution* (IF=4.14), 210, 94-103, DOI: 10.1016/j.envpol.2015.11.014.
- Fakhreddine S., Lee J., Kitanidis P.K., Fendorf S. and **M. Rolle** (2016). Imaging geochemical heterogeneities using inverse reactive transport modeling: An example relevant for characterizing arsenic mobilization and distribution. *Advances in Water Resources* (IF=3.42), 88, 186-197, DOI:10.1016/j.advwatres.2015.12.005.
- Ye Y., Chiogna G., Cirpka O.A., Grathwohl P. and **M. Rolle*** (2015). Experimental evidence of helical flow in porous media. *Physical Review Letters* (IF=7.51), 115 (19) – PRL EDITORS’ SUGGESTION.

- Muniruzzaman M. and **M. Rolle*** (2015). Impact of multicomponent ionic transport on pH fronts propagation in saturated porous media. *Water Resources Research* (IF=3.55), DOI: 10.1002/2014WR017134.
- Ye Y., Chiogna G., Cirpka O.A., Grathwohl P. and **M. Rolle*** (2015). Enhancement of plume dilution in three-dimensional porous media by flow-focusing in high-permeability inclusions. *Water Resources Research* (IF=3.55), DOI: 10.1002/2014WR016962.
- Rasouli P., Steefel C.I., Mayer U. and **M. Rolle** (2015). Benchmarks for multicomponent diffusion and electrochemical migration. *Computational Geosciences* (IF=1.87), DOI:10.1007/s10596-015-9481-z.
- Haberer C.M., Muniruzzaman M., Grathwohl P. and **M. Rolle** (2015). Diffusive/dispersive and reactive fronts in porous media: Fe(II)-oxidation at the unsaturated/saturated interface. *Vadose Zone Journal* (IF=2.41), DOI:10.2136/vzj2014.07.0091.
- Cirpka O.A., G. Chiogna, **Rolle M.** and A. Bellin (2015). Transverse mixing in three-dimensional non-stationary anisotropic heterogeneous porous media. *Water Resources Research* (IF=3.55), 51, DOI: 10.1002/2014WR015331.
- Chiogna G., Cirpka O.A., **Rolle M.** and A. Bellin (2015). Helical flow streamlines in three-dimensional nonstationary anisotropic heterogeneous porous media. *Water Resources Research* (IF=3.55), 51, DOI:10.1002/2014WR015330. WRR COVER.
- Ye Y., Chiogna G., Cirpka O.A., Grathwohl P. and **M. Rolle*** (2015). Influence of flow dimensionality on plume dilution: 2-D vs. 3-D flow-through experiments. *Journal of Contaminant Hydrology* (IF=2.20), 172: 33-47. DOI: 10.1016/j.jconhyd.2014.11.002.
- Haberer C.M., **Rolle M.**, Cirpka O.A. and P. Grathwohl (2015). Impact of heterogeneity on oxygen transport in a fluctuating capillary fringe. *Ground Water* (IF=2.31), DOI: 10.1111/gwat.12149.
- Chiogna G., **M. Rolle**, A. Bellin and O.A. Cirpka (2014). Helicity and flow topology in three dimensional porous media. *Advances in Water Resources* (IF=3.42), 73, 134-143, DOI: 10.1016/j.advwatres.2014.06.017.
- **Rolle M.*** and P.K. Kitanidis (2014). Effects of compound-specific dilution on transient transport and solute breakthrough: A pore-scale analysis. *Advances in Water Resources* (IF=3.42), 71, 186-199, DOI:10.1016/j.advwatres.2014.06.012.
- Jin B., **Rolle M.***, Li T. and Haderlein S.B. (2014). Diffusive fractionation of BTEX and chlorinated ethenes in aqueous solution: Quantification of spatial isotopic gradients. *Environmental Science & Technology* (IF=5.33), 48, 6141-6150, DOI: 10.1021/es4046956.
- Muniruzzaman M., Haberer C.M., P. Grathwohl and **M. Rolle*** (2014). Multicomponent ionic dispersion during transport of electrolytes in heterogeneous porous media. *Geochimica et Cosmochimica Acta* (IF=4.33), DOI: 10.1016/j.gca.2014.06.020.
- Jin B. and **M. Rolle*** (2014). Mechanistic Approach to Multi-Element Isotope Modeling of Organic Contaminant Degradation. *Chemosphere* (IF=3.34), DOI: 10.1016/j.chemosphere.2013.08.050.
- **Rolle M.***, Muniruzzaman M., Haberer C.M. and P. Grathwohl (2013). Coulombic effects in advection-dominated transport of electrolytes in porous media: Multicomponent ionic dispersion. *Geochimica et Cosmochimica Acta* (IF=4.33), 120, 195-205, DOI: 10.1016/j.gca.2013.06.031.

- Jin B., Haderlein S.B. and **M. Rolle*** (2013). Integrated carbon chlorine isotope modeling: Applications to chlorinated aliphatic hydrocarbons dechlorination. *Environmental Science & Technology* (IF=5.33), 47, 1443-1451, DOI: 10.1021/es304053h.
- **Rolle M.***, Chiogna G., Hochstetler D.L. and P.K. Kitanidis (2013). On the importance of diffusion and compound-specific mixing for groundwater transport: An investigation from pore to field scale. *Journal of Contaminant Hydrology* (IF=2.20), 153, 51-68, DOI: 10.1016/j.jconhyd.2013.07.006 – Highly cited JCH paper.
- Haberer C.M., Cirpka O.A., **Rolle M.** and P. Grathwohl (2013). Experimental sensitivity analysis of oxygen transfer in the capillary fringe. *Ground Water* (IF=2.31), DOI: 10.1111/gwat.12028.
- Hochstetler D.L., **Rolle M.***, Chiogna G., Haberer C.M., Grathwohl, P. and P.K. Kitanidis (2013). Effects of compound-specific transverse mixing on steady-state reactive plumes: insights from pore-scale simulations and Darcy-scale experiments. *Advances in Water Resources* (IF=3.42), 54, 1-13. DOI:10.1016/j.advwatres.2012.12.007.
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- Van Breukelen B.M. and **M. Rolle** (2012). Transverse hydrodynamic effects on isotope signals in groundwater chlorinated solvents' plumes. *Environmental Science & Technology* (IF=5.33), 46, 7700-7708. DOI: 10.1021/es301058z.
- Haberer C.M., **Rolle M.**, Cirpka O.A. and P. Grathwohl (2012). Oxygen transfer in a fluctuating capillary fringe. *Vadose Zone Journal* (IF=2.41), DOI: 10.2136/vzj2011.0056.
- **Rolle M.***, Hochstetler D.L., Chiogna G., Kitanidis P.K. and P. Grathwohl (2012). Experimental investigation and pore-scale modeling interpretation of compound-specific transverse dispersion in porous media. *Transport in Porous Media* (IF=1.43), 93, 347-362. DOI: 10.1007/s11242-012-9953-8.
- Chiogna G., Cirpka O.A., Grathwohl P. and **M. Rolle** (2012), Compound-specific local and effective transverse dispersion coefficients for conservative and reactive mixing in heterogeneous porous media, *IAHS*, 355, 163-168.
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- Cirpka O.A., de Barros F.P.J., Chiogna G., **Rolle M.** and W. Novak (2011). Stochastic flux-related analysis of transverse mixing in two-dimensional heterogeneous porous media. *Water Resources Research* (IF=3.55), 47, W07540, DOI:10.1029/2010WR010270. – FEATURED ARTICLE.

- **Rolle M.***, Chiogna G., Eberhardt C., Haberer C., Griebler C., Cirpka O.A. and P. Grathwohl. (2011). Two-dimensional flow-through experiments: versatile test systems for a combined investigation of transport and reactive processes in porous media. *IAHS*, 342, 259-262.
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- Sharma P., **Rolle M.**, Kocar B., Fendorf S. and A. Kappler (2011). Influence of natural organic matter on arsenic transport and retention. *Environmental Science & Technology* (IF=5.33), 45, 546-553. DOI: 10.1021/es1026008.
- **Rolle M.***, Maier U. and P. Grathwohl (2011). Contaminant fate and reactive transport in groundwater. Chapter 19 of the Book: *Dealing with Contaminated Sites: From Theory towards Practical Applications*. Springer, 1114 p. DOI: 10.1007/978-90-481-9757-6_19.
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- **Rolle M.***, Eberhardt C., Chiogna G., Cirpka O.A. and P. Grathwohl (2009). Enhancement of dilution and transverse reactive mixing in porous media: experiments and model-based interpretation. *Journal of Contaminant Hydrology* (IF=2.20), 110, 130-142, DOI: 10.1016/j.jconhyd.2009.10.003 (Top 5 JCH most cited papers in last 5 years 2012-2014).
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- Bauer R.D., **Rolle M.**, Kürzinger P., Grathwohl P., Meckenstock R.U. and C. Griebler (2009). Two-dimensional flow-through microcosms – versatile test systems to study biodegradation processes in porous aquifers. *Journal of Hydrology* (IF=3.05), 369, 284–295, DOI:10.1016/j.jhydrol.2009.02.037.
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- **Rolle M.***, Clement T.P., Sethi R. and A. Di Molfetta (2008). A kinetic approach for simulating redox-controlled fringe and core biodegradation processes in groundwater: model development and application to a landfill site in Piedmont, Italy. *Hydrological Processes* (IF=2.68), DOI: 10.1002/hyp.7113.