Massimo Rolle - DTU Orbit (23/11/2018)

Rolle, Massimo
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Department of Environmental Engineering - Associate Professor
Environmental Fate & Effect of Chemicals

Research outputs:

**Model-based interpretation of tracer tests in fractured limestone and clayey till**
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2019

**Coexistence of two distinct Sulfurospirillum populations respiring tetrachloroethene - genomic and kinetic considerations**
Research output: Research - peer-review › Journal article – Annual report year: 2018

**Coulombic effects during conservative and reactive transport of charged solutes in homogeneous and heterogeneous porous media: Experiments and modeling**
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

**Diffusive isotope fractionation of deuterated benzene and toluene in aqueous systems**
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

**Effect of anisotropy structure on plume dilution and reaction enhancement in helical flows**
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

**Effect of Anisotropy Structure on Plume Entropy and Reactive Mixing in Helical Flows**
Research output: Research - peer-review › Journal article – Annual report year: 2018

**Hydrogeochemical and multi-tracer investigations of arsenic-affected aquifers in semi-arid West Africa**
Research output: Research - peer-review › Journal article – Annual report year: 2018

**Imaging the spatial distribution of geochemical heterogeneities in porous media: multidimensional flow-through experiments and inverse modeling**
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

**Imaging the spatial distribution of geochemical heterogeneities with inverse reactive transport modeling: The example of pyrite oxidation**
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

**Impact of surface complexation and electrostatic interactions during pH fronts propagation in silica porous media: Experiments and model-based interpretation**
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018
Experimental investigation of the impact of compound-specific dispersion and electrostatic interactions on transient transport and solute breakthrough

Impact of compound-specific mixing and electrostatic interactions on transient transport and solute breakthrough

Investigation of mixing enhancement in porous media under helical flow conditions: 3-D bench-scale experiments

Modeling multicomponent ionic dispersion, electrochemical migration, and chemical reactions in porous media with IPhreeqc coupling

Normal and Inverse Diffusive Isotope Fractionation of Deuterated Toluene and Benzene in Aqueous Systems

Organohalide-respiring bacteria community competition dynamics: Experiments and model-based interpretations

The impact of mass transfer limitations and heterogeneity contrasts on the parameterization of longitudinal dispersion in numerical models

Bringing modelling to life: current research in an introductory MSc modelling course

Diffusion, Coulombic interactions and multicomponent ionic transport of charged species in saturated porous media

Diffusive-dispersive mass transfer in the capillary fringe: Impact of water table fluctuations and heterogeneities

Experimental investigation of transverse mixing in porous media under helical flow conditions

How can we make Fickian dispersion models useful in practice?
Imaging geochemical heterogeneities using inverse reactive transport modeling: An example relevant for characterizing arsenic mobilization and distribution
Research output: Research - peer-review » Journal article – Annual report year: 2016

Impact of multicomponent ionic transport on pH fronts propagation in saturated porous media
Research output: Research - peer-review » Conference abstract in journal – Annual report year: 2016

Joint interpretation of enantiomer and stable isotope fractionation for chiral pesticides degradation
Research output: Research - peer-review » Journal article – Annual report year: 2016

Model-based integration of enantiomer and stable isotope fractionation for chiral pesticides degradation
Research output: Research - peer-review » Conference abstract for conference – Annual report year: 2016

Modeling multicomponent ionic transport in groundwater with IPhreeqc coupling: Electrostatic interactions and geochemical reactions in homogeneous and heterogeneous domains
Research output: Research - peer-review » Journal article – Annual report year: 2016

Modeling position-specific isotope fractionation of organic micropollutants degradation via different reaction pathways
Research output: Research - peer-review » Conference abstract for conference – Annual report year: 2016

Multicomponent ionic transport and pH fronts propagation
Research output: Research - peer-review » Conference abstract for conference – Annual report year: 2016

Position-specific isotope modeling of organic micropollutants transformations through different reaction pathways
Jin, B. & Rolle, M. 2016 In : Geophysical Research Abstracts. 18, 1 p., EGU2016-4092
Research output: Research - peer-review » Conference abstract in journal – Annual report year: 2016

Position-specific isotope modeling of organic micropollutants transformation through different reaction pathways
Jin, B. & Rolle, M. 2016 In : Environmental Pollution. 210, p. 94-103
Research output: Research - peer-review » Journal article – Annual report year: 2016

Benchmarks for multicomponent diffusion and electrochemical migration
Research output: Research - peer-review » Journal article – Annual report year: 2015

Coulombic interactions and multicomponent ionic dispersion during transport of charged species in heterogeneous porous media
Research output: Research - peer-review » Conference abstract for conference – Annual report year: 2015

Diffusive–Dispersive and Reactive Fronts in Porous Media: Iron(II) Oxidation at the Unsaturated–Saturated Interface
Research output: Research - peer-review » Journal article – Annual report year: 2015

Enhancement of plume dilution in two-dimensional and three-dimensional porous media by flow focusing in high-permeability inclusions
Experimental Evidence of Helical Flow in Porous Media

Experimental investigation of compound-specific dilution of solute plumes in saturated porous media: 2-D vs. 3-D flow-through systems
Ye, Y., Chiogna, G., Cirpka, O., Grathwohl, P. & Rolle, M. 2015 In : Journal of Contaminant Hydrology. 172, p. 33-47

Helical flow in three-dimensional nonstationary anisotropic heterogeneous porous media

Impact of Heterogeneity on Oxygen Transfer in a Fluctuating Capillary Fringe
Haberer, C. M., Rolle, M., Cirpka, O. A. & Grathwohl, P. 2015 In : Ground Water. 53, 1, p. 57–70

Impact of multicomponent ionic transport on pH fronts propagation in saturated porous media

Modeling Multi-Element Isotope Fractionation during Biodegradation of Organic Micropolulants

On the importance of aqueous diffusion and electrostatic interactions in advection-dominated transport in saturated porous media

Pore-scale analysis on the effects of compound-specific dilution on transient transport and solute breakthrough
Rolle, M. & Kitanidis, P. 2015 1 p.

Transverse mixing in three-dimensional nonstationary anisotropic heterogeneous porous media

Diffusive Fractionation of BTEX and Chlorinated Ethenes in Aqueous Solution: Quantification of Spatial Isotope Gradients

Effects of compound-specific dilution on transient transport and solute breakthrough: A pore-scale analysis

Experimental Sensitivity Analysis of Oxygen Transfer in the Capillary Fringe

Helicity and flow topology in three-dimensional anisotropic porous media
Mechanistic approach to multi-element isotope modeling of organic contaminant degradation
Research output: Research - peer-review › Journal article – Annual report year: 2014

Multicomponent ionic dispersion during transport of electrolytes in heterogeneous porous media: Experiments and model-based interpretation
Research output: Research - peer-review › Journal article – Annual report year: 2014

Coulombic effects in advection-dominated transport of electrolytes in porous media: Multicomponent ionic dispersion
Research output: Research - peer-review › Journal article – Annual report year: 2013

Effects of compound-specific transverse mixing on steady-state reactive plumes: Insights from pore-scale simulations and Darcy-scale experiments
Research output: Research - peer-review › Journal article – Annual report year: 2013

Integrated carbon and chlorine isotope modeling: Applications to chlorinated aliphatic hydrocarbons dechlorination
Research output: Research - peer-review › Journal article – Annual report year: 2013

On the importance of diffusion and compound-specific mixing for groundwater transport: An investigation from pore to field scale
Research output: Research - peer-review › Journal article – Annual report year: 2013

Experimental Investigation and Pore-Scale Modeling Interpretation of Compound-Specific Transverse Dispersion in Porous Media
Research output: Research - peer-review › Journal article – Annual report year: 2012

Mixing, entropy and reactive solute transport
Research output: Research - peer-review › Journal article – Annual report year: 2012

Numerical simulation of isotope fractionation in steady-state bioreactive transport controlled by transverse mixing
Research output: Research - peer-review › Journal article – Annual report year: 2012

Oxygen Transfer in a Fluctuating Capillary Fringe
Haberer, C. M., Rolle, M., Cirpka, O. A. & Grathwohl, P. 2012 In : Vadose Zone Journal. 11, 3
Research output: Research - peer-review › Journal article – Annual report year: 2012

Stochastic evaluation of mixing-controlled steady-state plume lengths in two-dimensional heterogeneous domains
Research output: Research - peer-review › Journal article – Annual report year: 2012
Biogeochemical and isotopic gradients in a BTEX/PAH contaminant plume: Model-based interpretation of a high-resolution field data set
Research output: Research - peer-review › Journal article – Annual report year: 2009

CCD camera image analysis for mapping solute concentrations in saturated porous media
Research output: Research - peer-review › Journal article – Annual report year: 2009

Enhanced biodegradation by hydraulic heterogeneities in petroleum hydrocarbon plumes
Research output: Research - peer-review › Journal article – Annual report year: 2009

Enhancement of dilution and transverse reactive mixing in porous media: Experiments and model-based interpretation
Research output: Research - peer-review › Journal article – Annual report year: 2009

Two-dimensional flow-through microcosms - Versatile test systems to study biodegradation processes in porous aquifers
Research output: Research - peer-review › Journal article – Annual report year: 2009

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
Research output: Research - peer-review › Journal article – Annual report year: 2008

Projects:

Exchange of gases and volatile compounds between groundwater and air
Ahmadi, N., Rolle, M. & Mosthaf, K.
Samfinansieret - Andet
01/04/2018 → 31/03/2021
Project: PhD

Microbial community evolution models for describing the degradation of chlorinated solvents
Murray, A. M., Broholm, M. M., Rolle, M. & Holliger, C.
Institut stipendie (DTU)
01/09/2015 → 20/04/2019
Project: PhD

Functionality Increase in MBBRs due to metabolic expansion vs community expansion
Stipendie fra udlandet
15/01/2014 → 26/04/2017
Project: PhD

Origin and sustainable use of fresh groundwater in Western Zambia
Banda, K. E., Bauer-Gottwein, P., Jakobsen, R., Larsen, F., Nyambe, I., Rolle, M., Post, V. E. & Postma, D. J.
Stipendie fra udlandet
01/12/2011 → 23/09/2015
Project: PhD
Mechanisms of release and transport of arsenic in groundwater of semi-arid basins in China
Stolze, L., Rolle, M. & Bauer-Gottwein, P.
Samfinansieret - Andet
01/11/2015 → 01/05/2019
Project: PhD

Activities:

Model-based interpretation of tracer tests in fractured limestone and clayey till
Mosthaaf, K. (Speaker), Peter R. Jørgensen (Other), Thalund-Hansen, R. (Other), Broholm, M. M. (Other), Bjerg, P. L. (Other), Rolle, M. (Other)
15 May 2018
Activity: Talks and presentations › Conference presentations

Organohalide-respiring bacteria community competition dynamics: Experiments and model-based interpretations
Murray, A. M. (Speaker), Rolle, M. (Other), Jin, B. (Other), Julien Maillard (Other), Broholm, M. (Other), Christof Holliger (Other)
7 Nov 2017
Activity: Talks and presentations › Conference presentations

The 9th IAHS Conference on Groundwater Quality
Rolle, M. (Participant)
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

The 9th IAHS Conference on Groundwater Quality
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