Coexistence of two distinct Sulfurospirillum populations respiring tetrachloroethene - genomic and kinetic considerations. / Butet, Géraldine Florence; Murray, Alexandra Marie; Goris, Tobias; Burion, Mélissa; Jin, Biao; Rolle, Massimo; Holliger, Christof; Maillard, Julien.

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. / Muniruzzaman, Muhammad; Rolle, Massimo.
2018. Abstract from InterPore 10th Annual Meeting and Jubilee, New Orleans, United States.

Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

Diffusive isotope fractionation of deuterated benzene and toluene in aqueous systems. / Jin, Biao; Rolle, Massimo.

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. / Chiogna, Gabriele; Ye, Yu; Lu, Chunhui; Rolle, Massimo.

Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

Hydrogeochemical and multi-tracer investigations of arsenic-affected aquifers in semi-arid West Africa. / Bretzler, Anja; Stolze, Lucien; nikiema, Julien; Lalanne, Franck; Ghadiri, Elaheh; Brennwald, Matthias S.; Rolle, Massimo; Schirmer, Mario.
In: Geoscience Frontiers, 2018.

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. / Rolle, Massimo; Battistel, Maria; Onses, Felix; Lee, Jonghyun.
2018. Abstract from InterPore 10th Annual Meeting and Jubilee, New Orleans, United States.

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. / Rolle, Massimo; Harry Lee, Jonghyun.

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. / Stolze, Lucien; Muniruzzaman, Muhammad; Rolle, Massimo.
2018. Abstract from InterPore 10th Annual Meeting and Jubilee, New Orleans, United States.

Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

Longitudinal dispersion coefficients for numerical modeling of groundwater solute transport in heterogeneous formations. / Lee, Jonghyun; Rolle, Massimo; Kitandis, Peter K.

Research output: Research - peer-review › Journal article – Annual report year: 2018

Model-based interpretation of tracer tests in fractured limestone and clayey till. / Mosthaf, Klaus; Jørgensen, Peter R.; Thalund-Hansen, Rasmus; Broholm, Mette Martina; Bjerg, PouL Løgstrup; Rolle, Massimo.
2018. Abstract from InterPore 10th Annual Meeting and Jubilee, New Orleans, United States.

Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018
Modelling approach and benchmark experiments for Nernst-Planck-based transport, Coulombic interactions and geochemical reactions in saturated porous media. / Sprocati, Riccardo; Masi, Matteo; Jin, Biao; Muniruzzaman, Muhammad; Rolle, Massimo.
2018. Abstract from InterPore 10th Annual Meeting and Jubilee, New Orleans, United States.
Research output: Research - peer-review » Conference abstract for conference – Annual report year: 2018

Nernst-Planck Based Description of Transport, Coulombic Interactions and Geochemical Reactions in Porous Media: Modeling Approach and Benchmark Experiments. / Rolle, Massimo; Sprocati, Riccardo; Masi, Matteo; Jin, Biao; Muniruzzaman, Muhammad.
Research output: Research - peer-review » Journal article – Annual report year: 2018

Reactive fronts in chemically heterogeneous porous media: Experimental and modeling investigation of pyrite oxidation. / Battistel, Maria; Muniruzzaman, Muhammad; Onses, Felix; Lee, Jonghyun; Rolle, Massimo.
In: Applied Geochemistry, 2018.
Research output: Research - peer-review » Journal article – Annual report year: 2018

Simulation of dual carbon–bromine stable isotope fractionation during 1,2-dibromoethane degradation. / Jin, Biao; Nijenhuis, Ivonne; Rolle, Massimo.
In: Isotopes in Environmental and Health Studies, Vol. 54, No. 4, 2018, p. 418-434.
Research output: Research - peer-review » Journal article – Annual report year: 2018

Surface complexation modeling of arsenic mobilization from goethite: Interpretation of in-situ experiments in a sedimentary basin of Inner Mongolia, China. / Stolze, Lucien; Zhang, Di; Guo, Huaming; Rolle, Massimo.
2018. Abstract from InterPore 10th Annual Meeting and Jubilee, New Orleans, United States.
Research output: Research - peer-review » Conference abstract for conference – Annual report year: 2018

Towards imaging the spatial distribution of geochemical heterogeneities and arsenic sources. / Rolle, Massimo; Battistel, Maria; Onses, Felix; Mortensen, Rasmus; Fakhreddine, Sarah; Fendorf, Scott; Kitanidis, Peter K.; Harry Lee, Jonghyun.
2018. Abstract from 7th international congress & exhibition on arsenic in the environment, environmental arsenic in a changing world (AS2018), Beijing, China.
Research output: Research - peer-review » Conference abstract for conference – Annual report year: 2018

Coulombic interactions during advection-dominated transport of ions in porous media. / Muniruzzaman, Muhammad; Stolze, Lucien; Rolle, Massimo.
Research output: Research - peer-review » Conference abstract in journal – Annual report year: 2017

Effect of electrostatic interactions on pH fronts propagation in saturated in saturated porous media. / Muniruzzaman, Muhammad; Rolle, Massimo.
Research output: Research - peer-review » Conference abstract for conference – Annual report year: 2017

Entropy-based critical reaction time for mixing-controlled reactive transport. / Chiogna, Gabriele; Rolle, Massimo.
Research output: Research - peer-review » Journal article – Annual report year: 2017

Experimental determination of isotope enrichment factors – bias from mass removal by repetitive sampling. / Buchner, Daniel; Jin, Biao; Ebert, Karin; Rolle, Massimo; Elsner, Martin; Haderlein, Stefan B.
Research output: Research - peer-review » Journal article – Annual report year: 2016

Experimental investigation of concentration and stable isotopes signals during organic contaminants back diffusion. / Jin, Biao; Nika, Chrysanthi-Elisabeth; Rolle, Massimo.
Experimental investigation of the impact of compound-specific dispersion and electrostatic interactions on transient transport and solute breakthrough. / Muniruzzaman, Muhammad; Rolle, Massimo.
Research output: Research - peer-review › Journal article – Annual report year: 2017

Impact of compound-specific mixing and electrostatic interactions on transient transport and solute breakthrough. / Rolle, Massimo; Muniruzzaman, Muhammad.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Investigation of mixing enhancement in porous media under helical flow conditions: 3-D bench-scale experiments. / Chiogna, Gabriele; Ye, Yu; Cirpka, Olaf A.; Grathwohl, Peter; Rolle, Massimo.
Research output: Research - peer-review › Conference abstract in journal – Annual report year: 2017

Modeling multicomponent ionic dispersion, electrochemical migration, and chemical reactions in porous media with IPhreeqc coupling. / Muniruzzaman, Muhammad; Rolle, Massimo.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Normal and Inverse Diffusive Isotope Fractionation of Deuterated Toluene and Benzene In Aqueous Systems. / Rolle, Massimo; Jin, Biao.
Research output: Research - peer-review › Letter – Annual report year: 2017

Organohalide-respiring bacteria community competition dynamics: Experiments and model-based interpretations. / Murray, Alexandra Marie; Rolle, Massimo; Jin, Biao; Maillard, Julien; Broholm, Mette Martina; Holliger, Christof.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

The impact of mass transfer limitations and heterogeneity contrasts on the parameterization of longitudinal dispersion in numerical models. / Lee, Jonghyun; Rolle, Massimo; Kitanidis, Peter.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Bringing modelling to life: current research in an introductory MSc modelling course. / Binning, Philip John; Trapp, Stefan; Rolle, Massimo; Vezzaro, Luca.
2016. Abstract from 5th DTU Biennial for Teaching and Learning, Lyngby, Denmark.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Diffusion, Coulombic Interactions and multicomponent ionic transport of charged species in saturated porous media. / Rolle, Massimo; Muniruzzaman, Muhammad.
2016. Abstract from 9th International Association of Hydrological Sciences (IAHS) Groundwater Quality Conference (GQ16), Shenzhen, China.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Diffusive-dispersive mass transfer in the capillary fringe: Impact of water table fluctuations and heterogeneities. / Grathwohl, Peter; Haberer, Cristina; Ye, Yu; Muniruzzaman, Muhammad; Rolle, Massimo.
2016. Abstract from 9th International Association of Hydrological Sciences (IAHS) Groundwater Quality Conference (GQ16), Shenzhen, China.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2016
Experimental investigation of transverse mixing in porous media under helical flow conditions. / Ye, Yu; Chiogna, Gabriele; Cirpka, Olaf A.; Grathwohl, Peter; Rolle, Massimo.
Research output: Research - peer-review › Journal article – Annual report year: 2016

How can we make Fickian dispersion models useful in practice? / Harry Lee, Jonghyun; Rolle, Massimo; Kitanidis, Peter.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Imaging geochemical heterogeneities using inverse reactive transport modeling: An example relevant for characterizing arsenic mobilization and distribution. / Fakhreddine, Sarah; Lee, Jonghyun; Kitanidis, Peter K.; Fendorf, Scott; Rolle, Massimo.
Research output: Research - peer-review › Journal article – Annual report year: 2016

Impact of multicomponent ionic transport on pH fronts propagation in saturated porous media. / Muniruzzaman, Muhammad; Rolle, Massimo.
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. / Jin, Biao; Rolle, Massimo.
Research output: Research - peer-review › Journal article – Annual report year: 2016

Model-based integration of enantiomer and stable isotope fractionation for chiral pesticides degradation. / Jin, Biao; Rolle, Massimo.
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. / Muniruzzaman, Muhammad; Rolle, Massimo.
Research output: Research - peer-review › Journal article – Annual report year: 2016

Modeling position-specific isotope fractionation of organic micropollutants degradation via different reaction pathways. / Jin, Biao; Rolle, Massimo.
2016. Abstract from 9th International Association of Hydrological Sciences (IAHS) Groundwater Quality Conference (GQ16), Shenzhen, China.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Multicomponent ionic transport and pH fronts propagation. / Rolle, Massimo (Invited author); Muniruzzaman, Muhammad.
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, Biao; Rolle, Massimo.
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, Biao; Rolle, Massimo.
In: Environmental Pollution, Vol. 210, 2016, p. 94-103.
Research output: Research - peer-review › Journal article – Annual report year: 2016
Pore-scale analysis on the effects of compound-specific dilution on transient transport and solute breakthrough. / Rolle, Massimo; Kitanidis, Peter.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2015

Transverse mixing in three-dimensional nonstationary anisotropic heterogeneous porous media. / Cirpka, Olaf; Chiogna, Gabriele; Rolle, Massimo; Bellin, Alberto.
Research output: Research - peer-review › Journal article – Annual report year: 2015

Diffusive Fractionation of BTEX and Chlorinated Ethenes in Aqueous Solution: Quantification of Spatial Isotope Gradients. / Jin, Biao; Rolle, Massimo; Li, Ting; Haderlein, Stefan B.
Research output: Research - peer-review › Journal article – Annual report year: 2014

Effects of compound-specific dilution on transient transport and solute breakthrough: A pore-scale analysis. / Rolle, Massimo; Kitanidis, Peter K.
Research output: Research - peer-review › Journal article – Annual report year: 2014

Experimental Sensitivity Analysis of Oxygen Transfer in the Capillary Fringe. / Haberer, Christina M.; Cirpka, Olaf A.; Rolle, Massimo; Grathwohl, Peter.
Research output: Research - peer-review › Journal article – Annual report year: 2014

Helicity and flow topology in three-dimensional anisotropic porous media. / Chiogna, Gabriele; Rolle, Massimo; Bellin, Alberto; Cirpka, Olaf A.
Research output: Research - peer-review › Journal article – Annual report year: 2014

Mechanistic approach to multi-element isotope modeling of organic contaminant degradation. / Jin, Biao; Rolle, Massimo.
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. / Muniruzzaman, Muhammad; Haberer, Christina M.; Grathwohl, Peter; Rolle, Massimo.
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. / Rolle, Massimo; Muniruzzaman, Muhammad; Haberer, Christina M.; Grathwohl, Peter.
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. / Hochstetler, David L.; Rolle, Massimo; Chiogna, Gabriele; Haberer, Christina M.; Grathwohl, Peter; Kitanidis, Peter K.
Research output: Research - peer-review › Journal article – Annual report year: 2013

Integrated carbon and chlorine isotope modeling: Applications to chlorinated aliphatic hydrocarbons dechlorination. / Jin, Biao; Haderlein, Stefan B.; Rolle, Massimo.
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. / Rolle, Massimo; Chiogna, Gabriele; Hochstetler, David L.; Kitanidis, Peter K.
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. / Rolle, Massimo; Hochstetler, David; Chiogna, Gabriele; Kitanidis, Peter K.; Grathwohl, Peter.
Research output: Research - peer-review › Journal article – Annual report year: 2012

Mixing, entropy and reactive solute transport. / Chiogna, Gabriele; Hochstetler, David L.; Bellin, Alberto; Kitanidis, Peter K.; Rolle, Massimo.
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. / Eckert, Dominik; Rolle, Massimo; Cirpka, Olaf A.
Research output: Research - peer-review › Journal article – Annual report year: 2012

Oxygen Transfer in a Fluctuating Capillary Fringe. / Haberer, Christina M.; Rolle, Massimo; Cirpka, Olaf A.; Grathwohl, Peter.
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. / Cirpka, Olaf A.; Rolle, Massimo; Chiogna, Gabriele; De Barros, Felipe P. J.; Nowak, Wolfgang.
Research output: Research - peer-review › Journal article – Annual report year: 2012

Transverse Hydrodynamic Dispersion Effects on Isotope Signals in Groundwater Chlorinated Solvents' Plumes. / Van Breukelen, Boris M.; Rolle, Massimo.
Research output: Research - peer-review › Journal article – Annual report year: 2012

A high-resolution non-invasive approach to quantify oxygen transport across the capillary fringe and within the underlying groundwater. / Haberer, Christina M.; Rolle, Massimo; Liu, Sanheng; Cirpka, Olaf A.; Grathwohl, Peter.
Research output: Research - peer-review › Journal article – Annual report year: 2011

Chlorine Isotope Analysis of Organic Contaminants Using GC-qMS : Method Optimization and Comparison of Different Evaluation Schemes. / Jin, Biao; Laskov, Christine; Rolle, Massimo; Haderlein, Stefan B.
Research output: Research - peer-review › Journal article – Annual report year: 2011

Contaminant Fate and Reactive Transport in Groundwater. / Rolle, Massimo; Maier, Ulrich; Grathwohl, Peter.
Research output: Research - peer-review › Book chapter – Annual report year: 2011

Influence of Natural Organic Matter on As Transport and Retention. / Sharma, Prasesh; Rolle, Massimo; Kocar, Benjamin; Fendorf, Scott; Kappler, Andreas.
Research output: Research - peer-review › Journal article – Annual report year: 2011

Relevance of local compound-specific transverse dispersion for conservative and reactive mixing in heterogeneous porous media. / Chiogna, Gabriele; Cirpka, Olaf A.; Grathwohl, Peter; Rolle, Massimo.
Stochastic flux-related analysis of transverse mixing in two-dimensional heterogeneous porous media. / Cirpka, Olaf A.; de Barros, Felipe P. J.; Chiogna, Gabriele; Rolle, Massimo; Nowak, Wolfgang.
Research output: Research - peer-review | Journal article – Annual report year: 2011

Transverse mixing of conservative and reactive tracers in porous media: Quantification through the concepts of flux-related and critical dilution indices. / Chiogna, Gabriele; Cirpka, Olaf A.; Grathwohl, Peter; Rolle, Massimo.
Research output: Research - peer-review | Journal article – Annual report year: 2011

Evidence of Compound-Dependent Hydrodynamic and Mechanical Transverse Dispersion by Multitracer Laboratory Experiments. / Chiogna, Gabriele; Eberhardt, Christina; Grathwohl, Peter; Cirpka, Olaf A.; Rolle, Massimo.
Research output: Research - peer-review | Journal article – Annual report year: 2010

Isotopic Fractionation by Transverse Dispersion: Flow-through Microcosms and Reactive Transport Modeling Study. / Rolle, Massimo; Chiogna, Gabriele; Bauer, Robert; Griebler, Christian; Grathwohl, Peter.
Research output: Research - peer-review | Journal article – Annual report year: 2010

PHT3D: A Reactive Multicomponent Transport Model for Saturated Porous Media. / Appelo, C. A. J.; Rolle, Massimo.
Research output: Research - peer-review | Journal article – Annual report year: 2010

Biogeochemical and isotopic gradients in a BTEX/PAH contaminant plume: Model-based interpretation of a high-resolution field data set. / Prommer, H.; Anneser, B.; Rolle, Massimo; Einsiedl, Florian; Griebler, C.
Research output: Research - peer-review | Journal article – Annual report year: 2009

CCD camera image analysis for mapping solute concentrations in saturated porous media. / Jaeger, Stefanie; Ehni, Markus; Eberhardt, Christina; Rolle, Massimo; Grathwohl, Peter; Gauglitz, Guenter.
Research output: Research - peer-review | Journal article – Annual report year: 2009

Enhanced biodegradation by hydraulic heterogeneities in petroleum hydrocarbon plumes. / Bauer, Robert D.; Rolle, Massimo; Bauer, Sebastian; Eberhardt, Christina; Grathwohl, Peter; Kolditz, Olaf; Meckenstock, Rainer U.; Griebler, Christian.
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. / Rolle, Massimo; Eberhardt, Christina; Chiogna, Gabriele; Cirpka, Olaf A.; Grathwohl, Peter.
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. / Bauer, Robert D.; Rolle, Massimo; Kuerzinger, Petra; Grathwohl, Peter; Meckenstock, Rainer U.; Griebler, Christian.
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. / Rolle, Massimo; Clement, T. Prabhakar; Sethi, Rajandrea; Di Molfetta, Antonio.