

Prof. Dr. Christoph Schüth (*11.05.1962)

Dep. Materials- and Geosciences, Hydrogeology Group,
Technical University Darmstadt,

http://www.geo.tu-darmstadt.de/fg/hydrogeol/hydro_forschung/index.de.jsp



Professional Background

- 2005 - Full Professor Hydrogeology, TU Darmstadt
- 2005 Habilitation, University of Tübingen
- 1997 - 2003 Research Assistant, University of Tübingen
- 1995 - 1997 PostDoc, Stanford University, USA
- 1995 PhD, University of Tübingen
- 1981 - 1987 Study of Geology, University of Marburg

Research Interests

Hydrogeology of arid regions. Hydrochemical characterization of groundwaters. Groundwater management. Artificial groundwater recharge. Fate of contaminants in the environment.

Scientific Functions

- 2011 - Scientific Director, IWW Water Centre, Mülheim, a private non-profit research organization with a staff of about 120, serving mainly water supply companies.
- 2008 - Vice-Dean, Dep. of Materials- and Geosciences, Technical University Darmstadt.
- 2006 - 2008 Managing Director, Institute of Appl. Geosc., Technical University Darmstadt.

Selected International Projects

- 2019 - 2023 **Coordinator:** EU-ITN MARSoluT - Managed Aquifer Recharge Solutions Training Network (www.marsolut-itn.eu)
- 2016 - 2019 **PI:** Aquifer recharge as sustainable storage solution for desalinated water – The Menashe site in Israel (BMBF-MOST)
- 2016 - 2019 **Partner:** EU-ITN INSPIRATION - Managing soil and groundwater impacts from agriculture (<http://inspirationitn.group.shef.ac.uk/overview.php>)
- 2015 - 2018 **Partner:** EU-ITN HypoTRAIN - Enhancing the understanding of complex process interactions in the hyporheic zone (<http://www.igb-berlin.de/projekt/hypotrain>)
- 2015 - 2017 **Partner:** EU-Horizon 2020 Project FREEWAT - FREE and open source software tools for WATER resource management (<http://www.freewat.eu>)
- 2015 - 2017 **PI:** Greening Brownfields with Black Biochar (GIF – German Israeli Foundation for Scientific Research and Development)
- 2013 - 2017 **Coordinator:** EU-FP 7 project MARSOL - Managed Aquifer Recharge as a Solution to Water Scarcity and Drought (www.marsol.eu).

Peer reviewed publications last 5 years (Web of Science Core Collection)

2019

1. Becker, R., Koppac, A., Schulz, S., Usmand, M., aus der Beek, T., Schüth, C. (2019): Spatially distributed model calibration of a highly managed hydrological system using remote sensing-derived ET data. *Journal of Hydrology* (in press).
2. Li, A., aus der Beek, T., Schubert, M., Yu, Z., Schiedek, T., Schüth, C. (2019): Sedimentary Archive of Polycyclic Aromatic Hydrocarbons and Perylene Sources in the Northern Part of Taihu Lake, China. *Environmental Pollution*, 246, 198-206.
3. Barbagli, A., Jensen, B.M., Raza, M., Schüth, C., Rosetto, R. (2019): Assessment of soil buffer capacity on nutrients and pharmaceuticals in nature-based solution applications. *Environmental Science and Pollution Research*. 26, 759-774.

2018

4. Silver, M., Knöller K., Schlögel, J., Kübeck, C., Schüth, C. (2018): Nitrogen cycling and origin of ammonium during infiltration of treated wastewater for managed aquifer recharge. *Applied Geochemistry*, 97, 71-80.
5. Silver, M., Selke, S., Balsaa, P., Wefer-Roehl, A., Kübeck, C., Schüth, C. (2018): Fate of five pharmaceuticals under different infiltration conditions for managed aquifer recharge. *The Science of the Total Environment*, 642, 914-924.
6. Rodríguez-Escales, P., Canelles, A., Sanchez-Vila, X., Folch, A., Kurtzman, D., Rossetto, R., Fernández-Escalante, E., Lobo-Ferreiro, J.-P., Sapiano, M., San-Sebastián, J., Schüth, C. (2018): A risk assessment methodology to evaluate the risk failure of Managed Aquifer Recharge in Mediterranean basin, *Hydrology and Earth System Sciences*, 22, 3213-3227.
7. Wächter, J., Lehnè, R., Prein, A., Hoselmann, C., Schüth, C. (2018): Zusammenführung von Bohrschichtinformationen zur bundes-länderübergreifenden 3D-Modellierung im nördlichen Oberrheingraben. *Grundwasser*, 23, 337-346.
8. Michelsen, N., Roßmann, Y., Bauer, I., van Geldern, R., Schulz, S., Barth, J.A.C., Schüth, C. (2018): Comparison of precipitation collectors used in isotope hydrology. *Chemical Geology*, 488, 171-179.
9. Schreiter, I., Schmidt, W., Schüth, C. (2018): Sorption mechanisms of chlorinated hydrocarbons on biochar produced from different feedstocks: Conclusions from single and bi-solute experiments. *Chemosphere*, 203, 34-43.
10. Pouliaris, C., Peridikaki, M., Foglia, L., Schüth, C., Kallioras, A. (2018): Hydrodynamic analysis of a Mediterranean aquifer system with the use of hydrochemical and isotopical analysis as supporting tools. *Environmental Earth Sciences*, 77, 237.
11. Hollert, H., Crawford, S.E., Brack, W. et al. (2018): Looking back - Looking forward: A novel multi-time slice weight-of-evidence approach for defining reference conditions to assess the impact of human activities on lake systems. *The Science of the Total Environment*, 626, 1036-1046.
12. Kumar, A., Joseph, S., Tsechansky L., Privat, K., Schreiter, I.J., Schüth, C., Graber, E.R., (2018): Biochar aging in contaminated soil promotes Zn immobilization due to changes in biochar surface structural and chemical properties. *The Science of the Total Environment*, 626, 953-961.
13. Fatema, S., Marandi, A., Zahid, A., Hassan, M.Q., Hossain, A., Schüth, C. (2018): Seawater intrusion caused by unmanaged groundwater uses in a coastal tourist area, Cox's Bazar, Bangladesh. *Environmental Earth Sciences*. 77, 75.

2017

14. Nauditt, A., Soulsby, C., Birkel, C., Rusman, A., Schüth, C., Ribbe, L., Álvarez, P., Kretschmer, N. (2017): Using synoptic tracer surveys to assess runoff sources in an Andean headwater catchment in central Chile. *Environmental Monitoring and Assessment*, 189, 9, 440-457.
15. Md Bayzidul, I., A.B.M., F., Foglia, L., Marandi, A., Rahman Khan, A., Schüth, C., Ribbe, L. (2017): Regional groundwater flow model for sustainable groundwater resource management in a south Asian Megacity Dhaka, Bangladesh. *Hydrogeology Journal*, 25, 3, 617-637.
16. Schulz, S., Walther, M., Michelsen, N., Rausch, R., Dirks, H., Al-Saud, M., Merz, R., Kolditz, O., Schüth, C. (2017): Improving large-scale groundwater models by considering fossil gradients. *Adv. in Water Resources*, 99, 38-52.
17. Jang, E., He, W., Savoy, H., Dietrich, P., Kolditz, O., Rubin, J., Schüth, C., Kalbacher, T. (2017): Identifying the influential aquifer heterogeneity factor on nitrate reduction processes by numerical simulation. *Adv. in Water Resources*, 99, 38-52.

2016

18. Kludt, C., Weber, F.-A., Bergmann, A., Bertold, G., Knöller, K., Schüth, C. (2016): Identifizierung der Nitratabbauprozesse und Prognose des Nitratabbaupotentials in den Sedimenten des Hessischen Rieds. *Grundwasser*, 21, 227-241.
19. Michelsen, N., Dirks, H., Schulz, S., Kempe, S., Al-Saud, M., Schüth, C. (2016): YouTube as a crowd-generated water level archive. *The Science of the Total Environment*, 568, 189-195.
20. Kallioras, A., Khan, A., Piepenbrink, M., Pfletschinger, H., Königer, P., Dietrich, P., Schüth, C. (2016): Time-domain reflectometry probing systems for the monitoring of hydrological processes in the unsaturated zone. *Hydrogeology Journal*, 24, 1297-1309.
21. Schulz, S., Michelsen, N., Rooij, G.H., Rausch, R., Siebert, C., Schüth, C., Al-Saud, M., Merz, R. (2016): Estimating groundwater recharge for an arid karst system using a combined approach of time lapse camera monitoring and water balance modelling. *Hydrological Processes*, 30, 771-782.
22. Sahib, L.Y., Marandi, A., Schüth, C. (2016): Strontium isotopes as an indicator for groundwater salinity sources in the Kirkuk region, Iraq. *The Science of the Total Environment*, 562, 935-945.

2015

23. Pedreira, R., Kallioras, A., Pliakas, F., Gkiougis, I., Schüth, C. (2015): Groundwater vulnerability assessment of a coastal aquifer system at River Nestos eastern Delta, Greece. *Environmental Earth Sciences*. 73, 6387-6415.
24. Michelsen, N., Reshid, M., Siebert, C., Schulz, S., Knöller, K., Weise, S.M., Rausch, R., Al-Saud, M., Schüth, C. (2015): Isotopic and Chemical Composition of Precipitation in Riyadh-Saudi Arabia. *Chemical Geology*. 413, 51-62.
25. Chen, C., Bornick, H., Cai, QH., Dai, XH., Jahnig, SC., Kong, YL., Krebs, P., Kuenzer, C., Kunstmann, H., Liu, Y., Nixdorf, E., Pang, ZH., Rode, M., Schüth, C., Song, YH., Zhou, KX., Zhang, J., Kolditz, O. (2015): Challenges and opportunities of German-

Chinese cooperation in water science and technology. *Environmental Earth Sciences*, 73, 4861-4871.

26. Schulz, S., Horovitz, M., Rausch, R., Michelsen, N., Mallast, U., Köhne, M., Schüth, C., Al-Saud, M., Merz, R. (2015): Groundwater evaporation from sabkhas on the Arabian Peninsula. *Journal of Hydrology*, 531, 792-801.
27. Thilakerathne, A., Schüth, C., Chandrajith, R. (2015): The impact of hydrogeological settings on geochemical evolution of groundwater in karstified limestone aquifer basin in northwest Sri Lanka. *Environmental Earth Sciences*, 73, 8061-8073.
28. Recinos, N., Kallioras, A., Plakias, F., Schüth, C. (2015): Application of GALDIT index to assess the intrinsic vulnerability to seawater intrusion of coastal granular aquifers. *Environmental Earth Sciences*, 73, 1017-1032.

2014

29. Rausch, R., Dirks, H., Kallioras, A., Schüth, C. (2014): The riddle of the Springs of Dilmun – does the Gilgamesh epic tell the truth? *Ground Water*, 52, 4, 640-644.
30. Al Ajmi, H., Hinderer, M., Rausch, R., Hornung, J., Bassis, A., Keller, M., Schüth, C. (2014): Matrix versus fracture permeability in a regional sandstone aquifer (Wajid sandstone, SW Saudi Arabia). *Grundwasser*, 19, 2, 151-157.
31. Engelhardt, I., De Aguinaga, J.G., Mikat, H., Schüth, C., Liedl, R. (2014): Complexity versus Simplicity: An Example of Groundwater Model Ranking with the Akaike. *Ground Water*, 52, 4, 573-583.
32. Rahobisoa, J.-J., Kallioras, A., Schüth, C. (2014): Use of isotopic signatures for the determination of natural recharge and chemical characterization of groundwaters. The case of Horombe plateau area, SW Madagascar. *Environmental Earth Sciences*, 71, 4497-4511.
33. Lewin, I., Drefke, C., Piepenbrink, M., Schüth, C., Hoppe, A. (2014): Ermittlung der hydraulischen Durchlässigkeit von quartären Sedimenten mittels Siebanalysen und Pumpversuchen. Siebanalysen versus Pumpversuche – ein Methodenvergleich. *Grundwasser*, 19, 127-135.
34. Pfletschinger, H., Proemmel, K., Schüth, C., Herbst, M., Engelhardt, I. (2014): Sensitivity of Vadose Zone Water Fluxes to Climate Shifts in Arid Settings. In press. *Vadose Zone Journal*, 13.
35. Engelhardt, I.; Prommer, H., Schulz, M.; Vanderborght, J., Schüth, C.; Ternes, T.A. (2014): Reactive transport of iomeprol during stream-groundwater interactions. *Environmental Science and Technology*, 48, 199-207.
36. Engelhardt, I., Barth, J.A.C., Bol, R., Schulz, M., Ternes, T., Schüth, C., van Geldern, R. (2014): Quantification of Long-term Wastewater Fluxes into the Riparian Zone: A New Approach combines Stable Isotopes and Acesulfame. *The Science of the Total Environment*, 466-467, 16-25.