Curriculum Vitae - Dr. Peter Kuschk **2013-06-28**

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Academic career:

2008/2009	guest lecturer at the University of Applied Sciences Mittweida for "Drinking Water Purification and Wastewater Treatment”
2001 - 2004	guest lecturer at the University of Applied Sciences Anhalt, in Köthen, for "Phytoremediation"
since 1998	head of the group Ecological Water Treatment Technologies in the Department of Environmental Biotechnology of the UFZ
1992 – 1995	scientific co-worker at the Centre for Environmental Research Leipzig-Halle (UFZ)
1991	PhD thesis, methanogenic fermentation of a wastewater from the coal pyrolysis, University Oldenburg
1982 – 1991	scientific co-worker in the Institute for Biotechnology in Leipzig; task: anaerobic digestion of industrial wastewaters
1977 – 1982	studied biochemistry at the University of Halle (Germany)

Research areas:

- Low tech nature-near methods for wastewater treatment (see also web page: www.phyto.ufz.de)
- Microbial anaerobic processes and metal removal/fixation in artificial pond/wetland systems
- Fate of pharmaceutical residues in municipal wastewater in planted soil filter and pond systems (constructed wetlands)
- Cycles of nitrogen, sulphur and carbon in the technical ecosystem ”constructed wetland“ for wastewater treatment
- Oxygen-input into the rhizosphere by helophytes
- Hygienization of domestic sewage in ponds and constructed wetlands

Participation at international projects (selection):

- RAME - Pflanzenbasierte Methoden zur nachhaltigen Haldenrekultivierung und Behandlung von Bergbauwässern in Vietnam Vegetations-u. Bodenentwicklung mit Optimierung der Wasserbehandlungssysteme (Bergbaustandort Nui Beo/Dong Trien); 2008-01 – 2011-12; BMBF
- PROCOL project related researcher exchange (PPP) with Colombia – “ Enhancing biological processes for pollutant removal in constructed wetlands”, BMBF, 03/2008 – 12/2009
- EU-INCO-Project, Peri-urban mangroves forests as filters and potential phytoremediators of domestic sewage in East Africa – PUMPSEA ; grant INCO-CT2004-510863, PUMPSEA), 02/2005-01/2008
- Cooperation project Germany-Mexico „Passive treatment of tannery effluents“; MEX03/Z05; 2004-2006, funded by BMBF; Partner: BioPlanta GmbH, UFZ-Leipzig, Centro de Investigación y Asesoría Tecnológia en Cuero y Calzado, Leon, Mexico
- Cooperation project Germany-Mexico MEX00/004 „Novel insights in the use of aquatic plants for heavy metal removal“ (2000-2003 , funded by BMBF; partners: BioPlanta GmbH in Leipzig, CIATEC in Leon and Institute of Ecology in Xalapa)
- NATO-Collaborative Linkage Grant 978918 (2001-2004; „Heavy Metal Removal by Bioreactors and constructed wetlands“; Partners: IBPM in Pushchino, Russia and University Wageningen, The Netherlands)
- Cooperation project Germany-Mexico, „Reducing pathogenic germs in municipal sewage using constructed wetlands“, 2000-2003, funded by BMBF; Partner: UFZ-Leipzig, Martin-Luther-University Halle-Wittenberg, Universidad Nacional Autonoma de Mexico, Universidad Autonoma de Yucatan, Mexico, Umweltschutz Nord GmbH & Co

Publications:

2013

- Wiessner, A., Kappelmeyer, U., Kaestner, M, Schultze-Nobre, L., Kuschk, P. 2013. Response of ammonium removal to growth and transpiration of *Juncus effusus* during the treatment of artificial sewage in laboratory-scale wetlands. Water Research 47, 4265-4273
- Wu, S., Kuschk, P., Wiessner, A., Müller, J., Saad, R.A.B., Dong, R. 2013. Sulphur transformations in constructed wetlands for wastewater treatment: A review. Ecological Engineering 52, 278-289
- Wu, S., Wiessner, A., Braeckevelt, M., Kappelmeyer, U., Dong, R., Müller, J.A., Kuschk, P. 2013. Influence of nitrate load on sulfur transformations in the rhizosphere of *Juncus effusus* in laboratory-scale constructed wetlands treating artificial domestic wastewater. Environmental Engineering and Management Journal 12(3), 565-573
- Anh, B.T.K., Kim, D. D., Kuschk, P., Tua, T.V., Hue, N. T., Minh, N.N. 2013. Effect of soil pH on As hyperaccumulation capacity in fern species, *Pityrogramma calomelanos.* Journal of Environmental Biology 34(2), 237-242
- Seeger, E. M., Maier, U., Grathwohl, P., Kuschk, P., Kaestner, M. 2013. Performance evaluation of different horizontal subsurface flow wetland types by characterization of flow behavior, mass removal and depth-dependent contaminant load. Water Research 47(2), 769-780
- Wu, S., Kuschk, P., Wiessner, A., Kästner, M., Pang, C., Dong, R. 2013. Response of removal rates on various organic carbon and ammonium loads in laboratory-scale constructed wetlands treating artificial wastewater. Water Environment Research 85(1), 44-53

2012

- Chen, Z., Wu, S., Braeckevelt, M., Paschke, H., Kästner, M., Köser, H., Kuschk, P. 2012. Effect of vegetation in pilot-scale horizontal subsurface flow constructed wetlands treating sulphate rich groundwater contaminated with a low and high chlorinated hydrocarbon. Chemosphere 89, 724-731
- Wu, S., Lv, T., Li, Ch., Kuschk, P., Wiessner, A., Pang, Ch., Dong, R. 2012. Effect of nitrate on sulphur transformations depending on carbon load in laboratory-scale wetlands treating artificial sewage. Advanced Materials Research Vols. 518-523, pp 1902-1912; Online available since 2012/May/14 at www.scientific.net, Trans Tech Publications, Switzerland, doi:10.4028/www.scientific.net/AMR.518-523.1902
- Wu, S., Wiessner, A., Dong, R., Pang, C., Kuschk, P. 2012. Performance of two laboratory-scale horizontal wetlands under varying influent loads treating artificial sewage. Engineering in Life Sciences 12(2), 178-187
- Kuschk, P., Wiessner, A., Seeger, E.M., Kästner, M., Kappelmeyer, U., Paredes, D., Shtemenko, N.I. 2012. The status of research on constructed wetlands. In: K. Vitale (ed.), Environmental and Food Safety and Security for South-East Europe and Ukraine. NATO Science for Peace and

Security Series C: Environmental Security, DOI 10.1007/978-94-007-2953-7_15, Springer Science+Business Media B.V. 2012, pp. 155-171

- Wu, S., Chen, Z., Braeckevelt, M., Seeger, E.M., Dong, R., Kästner, M., Paschke, H., Hahn, A., Kayser, G., Kuschk, P. 2012. Dynamics of Fe(II), sulphur and phosphate in pilot-scale constructed wetlands treating a sulphate-rich chlorinated hydrocarbon contaminated groundwater. Water Research 46(6), 1923-1932
- Chen, Z., Kuschk, P., Reiche, N., Borsdorf, H., Kästner, M., Köser, H. 2012. Comparative evaluation of pilot scale horizontal subsurface-flow constructed wetlands and plant root mats for treating groundwater contaminated with benzene and MTBE. Journal of Hazardous Materials 209-210, 510-515

2011

- Wu, S., Jeschke, Ch., Dong, R., Paschke, H., Kuschk, P., Knöller, K. 2011. Sulfur transformations in pilot-scale constructed wetland treating high sulfate-containing contaminated groundwater: A stable isotope assessment. Water Research 45 (20), 6688-6698
- Seeger, E.M., Kuschk, P., Fazekas, H., Grathwohl, P., Kaestner, M. 2011. Bioremediation of benzene-, MTBE- and ammonia-contaminated groundwater with pilot-scale constructed wetlands. Env. Poll. 159 (12), 3769-3776
- Seeger, E.M., Reiche, N., Kuschk, P., Borsdorf, H., Kaestner, M. 2011. Performance evaluation using a three compartment mass balance for the removal of volatile organic compounds in pilot scale constructed wetlands. Environmental Science & Technology 45 (19), 8467-8474
- Braeckevelt, M., Seeger, E.M., Paschke, H., Kuschk, P., Kaestner, M. 2011. Adaptation of a constructed wetland to simultaneous treatment of monochlorobenzene and perchloroethene. International Journal of Phytoremediation 13(10), 998-1013
- Braeckevelt, M., Kaestner, M., Kuschk, P. 2011. Removal of monochlorobenzene and perchloroethene in wetland rhizosphere model systems. Engineering in Life Sciences 11(3), 298-308
- Rahman, K.Z., Wiessner, A., Kuschk, P., van Afferden, M., Mattusch, J., Müller, R.A. 2011. Fate and distribution of arsenic in laboratory-scale subsurface horizontal-flow constructed wetlands treating an artificial wastewater. Ecol. Eng. 37, 1214-1224
- Macherius, A., Kuschk, P., Haertig, C., Moeder, M., Shtemenko, N.I., Bayona, A.H., Guerrero, J.A.H., Gey, M. 2011. Composition changes in the cuticular surface lipids of the helophytes *Phragmites australis* and *Juncus effusus* as result of pollutant exposure. Environ. Sci. Pollut. Res. 18 (5), 727-733
- Braeckevelt, M., Reiche, N., Trapp, S., Wiessner, A., Paschke, H., Kuschk, P., Kaestner, M. 2011. Chlorobenzenes removal efficiencies and removal processes in a pilot scale constructed wetland treating contaminated groundwater. Ecological Engineering 37, 903-913

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compounds in horizontal sub-surface flow laboratory-scale constructed wetlands treating artificial sewage. Water Research 44(20), 6175-6185

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- Langenbach, K., Kuschk, P., Horn, H., Kästner, M. 2010. Modeling of slow sand filtration for disinfection of secondary clarifier effluent. Water Research 44 (1), 159-166

2009

- Macherius, A., Haertig, C., Kuschk, P., Shtemenko, N., Moeder, M. 2009. Analytical methods to characterize the composition of surface lipids of helophytes exposed to contaminated water. Counteraction to Chemical and Biological Terrorism in East European Countries. Book series: NATO Science for Peace and Security, Series A – Chemistry and Biology, 95-100
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2005

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161-166

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