

Dr Elfrida Carstea

Marie Curie Research Fellow

[School of Civil Engineering \(/schools/civil-engineering/index.aspx\)](/schools/civil-engineering/index.aspx)

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About

Dr. Elfrida Carstea is funded at the School of Civil Engineering under a Marie Curie Intra-European Fellowship. Her project, entitled “Fluorescence-Based Optimisation of Sewage Treatment” – Fluoro-BOOST aims to provide a novel, rapid and robust means of assessing wastewater treatment works performance and, in particular, to optimize activated sludge process (ASP) performance and energy input, and to monitor final effluent quality. In order to achieve this aim, Elfrida will study the relationship between the fluorescence of sewage (crude, settled, ASP-treated and final effluent) and more traditional analytical techniques (e.g. biochemical oxygen demand, chemical oxygen demand and total organic carbon) at laboratory and full scales.

Qualifications

- PhD in Physics, University of Bucharest, Romania, 2010
- MSc in Neurobiology, University of Bucharest, Romania, 2007
- BSc in Physics, University of Bucharest, Romania, 2005

Biography

- **November 2013- Present:** Marie Curie fellow, School of Civil Engineering, University of Birmingham
- **September 2011, November 2012 and July 2013:** Visiting Fellow at PROTEE Laboratory, University of South Toulon, France
- **2006 – 2013:** Researcher, National Institute for Optoelectronics, INOE2000, Bucharest, Romania

Research

Research interest:

- real-time water quality analysis using fluorescence spectroscopy

Other activities

Reviewer for the journals:

- Water and Environment Journal
- Water Research
- Journal of Hazardous Materials
- Frontiers of Environmental Science and Engineering in China
- Science of the Total Environment
- Air, Soil and Water Research

Publications

Selected publications:

- Carstea, E.M., Baker, A., Bieroza, M., Reynolds, D., Bridgeman, J. (2014), Characterisation of dissolved organic matter fluorescence properties by PARAFAC analysis and thermal quenching, *Water Research*, 61:152-161
- Carstea, E.M., Baker A., Savastru R. (2014), Comparison of river and canal water dissolved organic matter fluorescence within an urbanised catchment, *Water and Environment Journal*, 28:11-22
- Bridgeman, J., Baker, A., Cariell-Marquet, C., Carstea, E. (2013) Determination of changes in wastewater quality through a treatment works using fluorescence spectroscopy, *Environmental Technology*, 34:3069-3077
- Carstea, E.M., Ghervase, L., Pavelescu, G., Tautan, M. (2012), Real-time monitoring of an urban river contaminated with petroleum products, *Environmental Engineering and Management Journal*, 11: 279-283
- Carstea, E.M., Baker, A., Bieroza, M., Reynolds, D. (2010), Continuous fluorescence excitation emission matrix of river organic matter, *Water Research*, 44: 5356-

- Carstea, E.M., Baker, A., Boomer, I., Pavelescu, G. (2009), Continuous fluorescence assessment of organic matter variability on the Bournbrook River, Birmingham, UK, *Hydrological Processes*, 23: 1937–1946
- Pfeiffer, E., Pavelescu, G., Baker, A., Roman, C., Iojă, C., Savastru, D. (2008), Pollution analysis on the Arges River using fluorescence spectroscopy, *Journal of Optoelectronics and Advance Materials*, 10: 1489 – 1494

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