



# THE SALZBERG CHEMISTRY SEMINAR SERIES



The City College  
of New York



Monday, March 20, 2023 @ 12:00 noon – MR1027

## Classic and new adsorbents for environmental remediation

**Mariusz Barczak**

Maria Curie-Skłodowska University



**Abstract:** Adsorption is one of the key technologies used in water and wastewater treatment. The development of adsorption-based processes is inextricably linked to the search for new porous materials that could be used as sorbents for various types of pollutants. During the lecture, research on adsorption of various types of emerging pollutants (heavy metal ions, rare earth metals, pharmaceuticals) on various adsorbents will be discussed, including activated carbons, mesoporous carbons and mesoporous silicas. The intrinsic effectiveness of the adsorbent in the case of adsorption from the liquid phase is usually dependent on two key factors, i.e. the porous structure of the adsorbent and its surface chemistry, which will also be discussed in detail. Attention will be paid to the possibility of theoretical modeling of interactions between the surface of the adsorbent and the adsorbed molecules, which can provide a lot of very valuable information about mechanisms of the processes occurring on the surface.

**Biography:** Mariusz Barczak completed his PhD and DSc (habilitation) at Maria Curie-Skłodowska University in Lublin (Poland). He is now associate professor at this university and his research interests include adsorption, porous materials, biomaterials, hybrid materials and nanomaterials, as well as biosensors, thin films and sol-gel method. He is an independent EU expert as well as many national research agencies in Europe. He is a member of the Association of Top 500 Innovators - the largest NGO platform in Poland dealing with cooperation between the R&D sector and innovative companies, including to serve as a member of the management board. He has completed several research stays in Institute of Surface Chemistry in Kiev (Ukraine), Stanford University (USA), NASA Ames Research Center (USA), Biomedical Diagnostics Institute (Ireland), University of Granada (Spain) and others. Currently, he is a fellow of the Kosciuszko Foundation, which enabled him to carry out research at CCNY in the team of prof. T. Bandoz.

Join Meeting in-person at MR-1027

To join remotely, register at:

<https://ccny.zoom.us/meeting/register/tZwufu2vpj8qEtUztsbm6MsignisdO8cZB1K>