

Chemistry for Environment and Health

Dr. Michael Eze

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Chemistry Seminar on Environment and Health

**Thursday
March 9 at 4
pm in 303
Schrenk**

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Abstract: Industrialization and increasing demand for energy have led to an unabating exploitation of natural resources, especially fossil fuels. Even beneficial activities (such as pest control in agriculture) are leaving behind unwanted and toxic effects. This often results in anthropogenic contamination of aquatic and terrestrial ecosystems, which threatens the survival of our planet and species. Similarly, the experience of the recent pandemic brought to bare the havoc that infectious diseases can cause. Even more important, it has shown the need for rapid and non-invasive diagnostic tools for early detection of diseases. Sadly, most traditional diagnostic methods are both invasive and expensive. In view of the environmental and health impacts of toxic contaminants and infectious diseases, it is worth asking: can science provide the urgently needed panacea? This talk will examine the answers to this question. Specifically, it will examine eco-friendly approaches for environmental pollutant remediation. It will also highlight how advances in (bio)analytical techniques, metabolomics and chemometrics are helping to innovate non-invasive diagnostic tools for early detection of human and plant diseases.

About the speaker: Michael Eze completed his dual-doctoral training in Australia and Germany in 2021. He was awarded his *PhD in Analytical and Organic Geochemistry* from Macquarie University, Sydney, Australia, and *Doctor rerum naturalium (German PhD equivalent) in Biology* from the University of Goettingen, Germany. For his German doctorate, he was awarded the highest possible grade of 1.00 (according to the German grading system) in both dissertation and disputation. Prior to his doctoral program, he obtained the degrees of *Master of Science in Analytical Chemistry*, and *Bachelor of Science (Honours) in Pure and Industrial Chemistry*, both from Nigeria.

Michael Eze is currently a Postdoctoral Scholar with the Bioinstrumentation and BioMEMS Laboratory of the University of California Davis. His research focuses on designing and executing experiments to profile metabolomic content of complex samples; investigating bioaccumulation of persistent organic pollutants in the environment as well as living tissues; and developing mass spectrometry-based metabolomic methods for early detection of human and plant diseases. Michael's research has been published in more than 12 journals by leading publishers such as Nature, Elsevier, and Royal Society of Chemistry. In addition, he is a recipient of about 20 national and international awards, grants, and fellowships. In 2022, Michael was selected by the Polish Government as an international expert member of Panel NZ8 to review grant proposals for the OPUS-23 funding scheme.