Advances in A.I. and Machine Learning for Chemistry and Mass Spectrometry

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In recent years, the integration of artificial intelligence (AI) and machine learning (ML) techniques into the field of chemistry and mass spectrometry has revolutionized the way we analyze and process data in the context of environmental analyses. This seminar aims to explore the latest innovations and methodologies in AI and ML applied to chemistry and mass spectrometry, with a specific focus on their transformative applications in environmental analyses.

Advancements in AI and ML have paved the way for the development of novel analytical tools, data processing techniques, and predictive models that not only enhance our understanding of complex chemical systems but also contribute to the sustainable management of our environment and the preservation of our cultural heritage. Topics to be discussed in this seminar include:

• Deep learning applications in mass spectrometry data analysis, enabling high-throughput, accurate, and automated analysis of complex molecular spectra.

• Integration of AI and ML in the interpretation of spectroscopic data for the identification of compounds and molecules.

• Data-driven approaches for environmental monitoring and assessment, such as the detection of pollutants, the analysis of complex chemical mixtures, and the prediction of environmental impacts.

• Non-invasive techniques in cultural heritage analysis, including the identification of materials, characterization of artworks, and the restoration and conservation of historical artifacts.

In this seminar we will explore the forefront of AI and ML research in the fields of chemistry and mass spectrometry, as we delve into how these innovative methods are shaping the future of environmental analysis and cultural heritage preservation. We will also discuss the challenges and ethical considerations associated with these technologies and their potential to drive positive change in the world of science.

Tuesday, Nov. 14 / 4:00 pm / PS 308

Zoom Meeting ID: 83918530990

Pre-colloquium refreshments beginning at 3:30 pm in PS 308