**Invited Lecture**

# Analysis of chemical properties using 3D ED and other techniques

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Three-dimensional electron diffraction (3D ED) is a measurement and analysis technique in transmission electron microscopy used to determine atomic structures from small crystals. It enables the study of diverse targets such as proteins, polypeptides, and organic compounds, which may exist in aqueous solutions, organic solvents, or as dried powders. Our group has been involved in developing this technique, which can now rapidly process large amounts of data collected through AI control, facilitating efficient structure determination. We are particularly interested in exploring the possibility of extracting Coulomb potential information of samples using this and other techniques. In my presentation, I will introduce our approach and recent results, also discussing the limitations and prospects of 3D ED compared to microcrystallography with X-ray free electron lasers and single-particle cryo-EM.