**Weiwei Xie (****xieweiwe@msu.edu****)**

Associate Professor of Chemistry, Michigan State University

**Novel QuantumMaterials under High Pressure**

**Abstract:** Design and discovery of new quantum materials will accelerate the development of new technologies in the future. I will report my group research progress in the past two years, mainly focusing on exploring new superconductors and magnetic quantum materials under high pressure. I will introduce how we use the lab-based in-situ single crystal X-ray diffraction to detect the phase transition under high pressure and how we synthesize the single crystals of new iridates family under high pressure and high temperature. I will also talk about how we find the new nickel-based compounds with Kagome lattice and charge density waves (CDWs) inspired from chemistry phase diagram and suppress the CDWs to induce superconductivity.

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