【无机化学论坛】**Fundamentals and Applications of Highly-Correlated Electron Systems in Organic Radical Solids**

报告: Prof. Kunio Awaga

**Research Center for Materials Science, Nagoya University**

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**报告摘要：**

**Fundamentals and Applications of Highly-Correlated Electron Systems in Organic Radical Solids**

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Chalcogen-nitrogen compounds such as thiazole and thiazyl compounds, are useful building brocks for the molecule-based magnetic and conductive materials due to their chemical stability in the neutral and anion radical states. Their molecular structures have a large electronic polarization, leaving, respectively, a positive and a negative polarized charge on sulfur and nitrogen, and these charges form short intermolecular, interatomic electrostatic contacts. In addition, their molecular skeletons involve less hydrogen atoms, which usually terminate side-by-side intermolecular interactions. These features always realize multi-dimensional intermolecular interactions. Most of the thiazole and thiazyl compounds are sublimable, so it is easy to make high-quality thin films by vacuum sublimation. Therefore, they are also promising materials in organic electronics and spintronics. In this presentation, we report their unusual physical properties, based on strong spin-lattice and spin-spin interactions in the 3D crystal structures, and also describe the structures, properties and fuctions of thier thin- and molnolayer-films [1,2]. We also describe our recent work on the radical anion salts of NDI(naphthalene diimide)-, which crystallize into the so-called *K*4 structure, which graph theory predicts as a new allotrope structure of 3D carbon [3,4].

***References***

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