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Thesis Outline

Title: Design of Electronic Devices Using Redox-active Organic Molecules and Its Porous Coordination Networks

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This thesis aims at the development of electronic devices using a redox-active organic molecule and its porous coordination networks (PCNs) and highlights the importance of molecular arrangement. A redox-active organic molecule having a large π -plane and multi-intermolecular interactivity was utilized for developing a resistive switching memory device. Furthermore, its PCNs were synthesized to fabricate chemiresistive sensors. The electrical properties were modulated by the post-synthetic modification. Each mechanism was systematically investigated by structural determination together with well-defined control experiments. A general guideline for designing electronic devices using redox-active organic molecules was proposed.