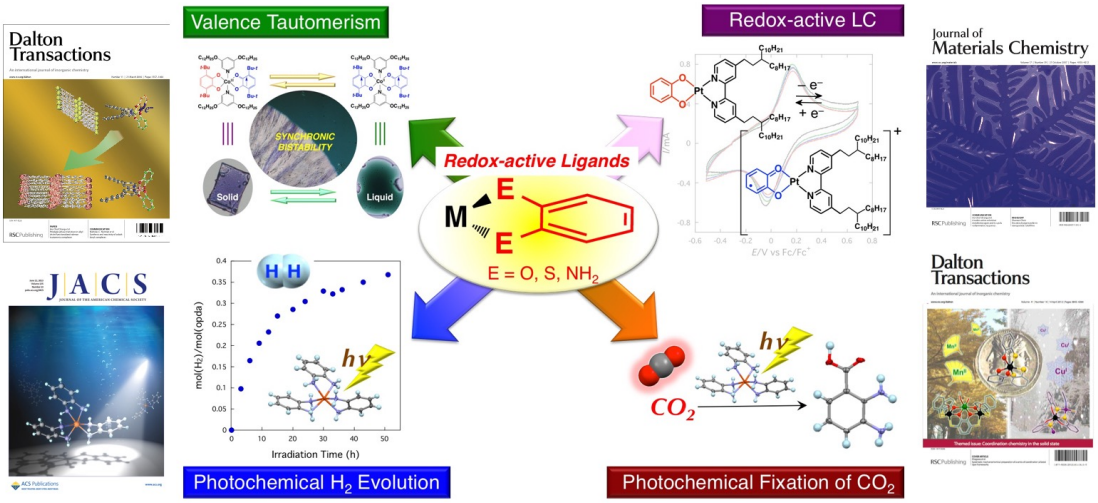
A New Challenge in the Molecular Functional Chemistry of Redox-active Ligands

HO-CHOL CHANG

Department of Applied Chemistry, Faculty of Science and Engineering, Chuo University, 1-13-27 Kasuga, Bunkyo-ku, 112-8551 Tokyo, Japan
e-mail: chang@kc.chuo-u.ac.jp

The development of molecules and molecular assemblies that exhibit electron and proton transfers is an attractive research target not only in basic chemistry but also in advanced chemistry, including catalytic substrate conversions *via* redox reactions. In particular, the coupling of transition metal ion with *redox-active ligands* such as catecholato, benzendithiolato, and phenylenediamine have opened up a new dimension to the chemistry of molecular science. This presentation will show our recent developments in making functional molecules and molecular assemblies that respond to heat, light, and electrochemical redox reactions based on the electron/proton transfer processes of non-innocent/redox-active ligands.[1-4]



References

1 *Ligand-centered photochemical reaction*: for example, a) *Sci. Rep.*, **2018**, *8*, 14623, b) *Chem. Lett.*, **2017**, *46*, 232, c) *Nat. Commun.*, **2016**, *7*, 12333, c) *J. Am. Chem. Soc.*, **2013**, *135*, 8646 (*Front Cover & Spotlight*).

2 *Redox-active liquid crystals*: for example, a) *Chem. Eur. J.*, **2018**, *24*, 7398 (*Inside Cover*), b) *Dalton Trans.*, **2013**, *42*, 15595, c) *Inorg. Chem.*, **2011**, *50*, 4279, d) *J. Mat. Chem.* **2007**, *17*, 4136 (*Front Cover*).

3 *Multielectron transfer system*: for example, a) *Eur. J. Inorg. Chem.*, **2017**, 3498, b) *Chem. Eur. J.*, **2017**, *23*, 9919, c) *Dalton Trans*, **2016**, *45*, 4974, d) *Dalton Trans*, **2015**, *44*, 14304, e) *Bull. Chem. Soc. Jpn.*, **2015**, 88, 74 (*Selected Paper*).

4 *Valence tautomerism coupled with macroscopic phase transformation*: for example, a) *Eur. J. Inorg. Chem.*, **2013**, 642 (*Invited Microreview*), b) *J. Am. Chem. Soc.* **2008**, *130*, 5515, c) *Chem. Commun.*, **2010**, *46*, 3729, d) *Chem. Commun.* **2009**, 4085, e) *Chem. Mat.* **2009**, *21*, 1980, f) *Dalton Trans.* **2006**, 1377 (*Front Cover*).