

**Tentative Outline**  
**Special Thematic Issue for Current Organic Chemistry**

**Title: Recent Topics in Iodine Reagents and Compounds in Organic Chemistry**

**Guest Editor's Name: Toshifumi Dohi**

**Aims & Scope:**

Iodine can be incorporated into many organic molecules and fine chemicals utilized in a wide range of scientific fields and applications. The unique halogen bonding interaction between iodine atom and heteroatom groups has become a general chemical strategy in designing organic materials and pharmaceutical compounds. Due to the large atomic size of iodine, the carbon-iodine bonds in organic iodides have the longest length among those of other halogenated molecules, which makes the bond energy and strength lowest and weakest markedly among the series of organic halides. As a result, organic iodides were favorably used as an excellent electrophile in cross-coupling reactions and precursor for generating highly reactive carbon species, such as carbocations, anions, radicals, and carbenes, etc., in organic reactions. In addition, efficient iodine introductions and other synthetic transformations, such as oxidations, have been achieved with various iodine reagents and new catalysts. Iodine atom can constitute various inorganic compounds owing to its divertible oxidation states, some of which possess oxidizing abilities, and iodine atoms in organic compounds can easily take hypervalent forms, which are popularly used for oxidation reactions and cross-couplings in stoichiometric and catalytic manners as a greener alternative to heavy metal oxidants, as well as transition metal catalysts. Furthermore, unique transformations of organic substrates bearing iodine atoms have recently appeared in the literature, which includes new strategies and concepts for reaction designs controlled by the sizes and oxidation states of the iodine groups.

This Special Thematic Issue will highlight the recent interest in iodine reagents and iodine compounds in organic chemistry. We welcome review articles including the recent advances on the theme, for example, organic transformation controlled by iodine groups and reagents, design of new iodine-based reagents and catalysts for selective synthesis, asymmetric transformation by chiral iodine reagents and catalysts, effective synthesis of useful iodine reagents and compounds, and unique synthetic intermediates bearing iodine groups.

**Keywords:** Iodine, organoiodine compounds, iodinating reagents, oxidants, hypervalent compounds, iodinations, coupling reactions, halogen-bonding interaction, etc.

**Subtopics**

The subtopics to be covered within this issue are listed below:

- Organoiodine compounds
- Iodine reagents and catalysts
- Iodinations
- Iodoniums and related intermediates
- Hypervalent iodines
- Halogen bonding interaction

Areas to be covered in this Special Thematic Issue may include, but are not limited to the extension of the known synthetic strategy and reaction for the new construction of organic molecules and for application to the useful organic compounds, i.e., natural products, bioactive molecules, and organic materials.

#### Schedule:

- ✧ Manuscript submission deadline: May 2022
- ✧ Peer Review Due: June 2022
- ✧ Revision Due: July 2022
- ✧ Announcement of acceptance by the Guest Editors: Aug 2022
- ✧ Final manuscripts due: by the end of July 2022

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