Advanced Molecular Design

2 units (selection)

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Target〉 The purpose of this class is to understand the principles of precise synthesis and polymerization reactions from the viewpoint of ligand design, asymmetric induction, etc.

Outline〉 Advanced discussion of current aspects of molecular design. Organic reaction mechanism and molecular design. Polymer synthesis, polymerization mechanism, and macromolecular design. Supramolecular chemistry. Correlation between inter-or intramolecular structure and chemical reactivity or functionality.

Style〉 Portfolio

Keyword〉 ***chain polymerization, living polymerization, stereospecific polymerization***

Fundamental Lecture〉 "**Advanced Topics in Polymerization Reactions**"(1.0)

Relational Lecture〉 "**Functional Materials**"(0.5)

Requirement〉 Requires undergraduate level knowledge of organic and polymer chemistry.

Goal〉

1. To understand the principles of precise synthesis.
2. To understand the principles of precise polymerization.

Schedule〉

1. organic radicals
2. radical structure and ESR
3. radical structure and reactivity
4. molecular design based on radical mechanism
5. synthesis of functional polymers by radical polymerization
6. polymerization with heterogeneous catalysts
7. polymerization with homogeneous catalysts
8. polymerization with transition metal catalysts - stereocontrol
9. reaction control by Lewis acids
10. stereospecific polymerization
11. reaction field and molecular design
12. molecular assembly and molecular design
13. reaction control in asymmetric field
14. application of physical gels to polymerization reaction
15. molecular design and synthesis of dendritic polymers

Evaluation Criteria〉 Assignments counts 100% mainly based on the report submitted.

Textbook〉 Printed synopses will be distributed.

Reference〉 野瀬卓平他編「大学院高分子科学」講談社

Contents〉 http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216880

Student〉 Able to be taken by only specified class(es)

Contact〉

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