

KYPC: From Radical Chemistry to (pseudo) Living Free Radical Polymerization

Program

Section 1: Fundamental radical chemistry

- L1: historical, stabilization vs stability (thermodynamic vs kinetics), nucleophilic, electrophilic and ambiphilic radicals,
- L2: energetic: Pauling's relationship and its variants, Bell-Evans-Polanyi-Semenov relationships
- L3 + L4: Main reactions: H-transfer, addition, substitution, coupling, fragmentation, Karash and Barton-McCombie reactions

Section 2: basic in kinetics needed for radical polymerization

- L5: fundamentals in kinetics: first order, second order, competitive and successive reactions, Ostwald principle, equilibrium
- L6: Arrhenius and Eyring relationships, and their limits. Curtin Hammett principle, Hammond postulate and TS, energetics
- L7: LFER, Hammett constants, steric constants, few examples of applications.

Section 3: the link between fundamental radical reactions and radical polymerization

- L8: from radical addition to conventional radical polymerization
- L9: from Persistent radical Effect to Nitroxide Mediated Polymerization and Atom Transfer Radical Polymerization (ATRP)
- L10 + L11 + L12: Nitroxide Mediated Polymerization and its variants
- L13 + L14: from Karash reaction to ATRP and its variants
- L15 + L16: from Barton-McCombie reaction to Reversible-Addition radical Fragmentation Transfer polymerization

Section 4: Some examples of Applications of radical chemistry in Materials Sciences.

- L17: some applications of NMP, ATRP, and RAFT in Material Sciences
- L18: degradation of multi-layer films using a combination of techniques (EPR, IR, ATRF, Raman, titration, Principal component Analysis, XPS).

Test

Lecturer



Prof. Sylvain MARQUE

- Professor at Aix-Marseille University, Marseille, France
- Honorary Professor at NIOCh, Novosibirsk, Russia
- Fellows of IUPAC

Предварительное расписание

с 5 по 12 декабря
(ежедневно, кроме сб, вс)
12.00-13.30, 14.30-17.30

Контакты

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Первое занятие
5 декабря, 12.00



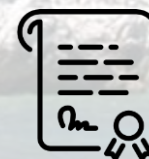
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2 зачетные
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