

Visible-light-triggered radical chemistry: From the generation of Boron-based radicals to the synthesis of controlled-sized polymer particles

Emmanuel Lacôte



1 Short CV

since 2015: Chair, laboratory of energetic materials, CNRS / université Claude Bernard-Lyon 1.
2012: joined the catalysis, chemistry, polymerization and processes lab., @ CPE Lyon.
2008: promoted CNRS director of research (senior researcher).
2004: Habilitation, Sorbonne U. S, *B-based radical chemistry & hybrid polyoxometalates*.
2000: appointed CNRS chargé de recherche (junior researcher) @ Parisian Institute for Molecular Chemistry, Pierre et Marie Curie U. (now Sorbonne U.), Paris.
1999-2000: Postdoc, Stanford, USA (Paul A. Wender). *Total Synthesis of Bryostatin 1 Analogs*.
1994-1999: Ph. D. (29/6): Univ. Pierre et Marie Curie (now Sorbonne U.) & Univ. de Fribourg (CH),
Advisors: Max Malacria, Philippe Renaud. *Applications of Lewis acids in radical chemistry*.
1991-1995: undergraduate studies, École Normale Supérieure, Paris

2 Bibliometric data

163 publications: **136** peer-reviewed articles, **2** patents, **4** proceedings and other, **1** book, **20** reviews and book chapters
h index = **51**, 7061 cit. (6317 w/o self-citations)

3 Selection of the 10 most relevant publications and/or patents (last 10 years)

• Photopolymerization in dispersed media

1) "Visible-Light Initiated Dispersion Photopolymerization of Styrene" Canterel, R.; Lalevée, J.; Bourgeat-Lami, E.; Lacôte, E.; Lansalot, M. *Angew. Chem. Int. Ed.*, **2023**, e202309674; doi.org/10.1002/anie.202309674. *Press release from Angewandte*: <https://onlinelibrary.wiley.com/page/journal/15213773/homepage/press/202344press.html>.

• Boron radical chemistry

2) "NHC induced Radical Formation via Homolytic Cleavage of B–B Bonds and its Role in Organic Reactions" Kuehn, L.; Zapf, L.; Werner, L.; Stang, M.; Würtemberger-Pietsch, S.; Krummenacher, I.; Braunschweig, H.; Lacôte, E.; Marder, T. B.; Radius, U. *Chem. Sci.* **2022**, *13*, 8321-8333.

3) "Development of a borane-(meth)acrylate photo-click reaction" Aubry, B.; Canterel, R.; Lansalot, M.; Bourgeat-Lami, E.; Airoudj, A.; Graff, B.; Dietlin, C.; Morlet-Savary, F.; Blahut, J.; Benda, L.; Pintacuda, G.; Lacôte, E.; Lalevée, J. *Angew. Chem. Int. Ed.* **2021**, *60*, 17037-17044.

4) "Difluorination at Boron leads to the First Electrophilic Ligated Boryl Radical (NHC-BF₂•)" Subervie, D.; Graff, B.; Nerkar, S.; Curran, D. P.; Lalevée, J.; Lacôte, E. *Angew. Chem. Int. Ed.* **2018**, *57*, 10251-10256.

- Nitrogen-rich materials

5) "Synthesis and Properties of Higher Nuclearity Polyazanes" Criton, T.; Vilona, D.; Jacob, G.; Médebielle, M.; Dumont, E.; Joucla, L.; Lacôte, E. *Chem. Eur. J.* **2021**, *27*, 3670-3674.

6) "Energetic Nitrogen-Rich Polymers with a Tetrazene-Based Backbone" Eymann, J.; Joucla, L.; Jacob, G.; Raynaud, J.; Darwich, C.; Lacôte, E. *Angew. Chem. Int. Ed.* **2021**, *60*, 1578-1582.

- Boron polymers

7) "Tunable hydrogen release from amine-boranes via their insertion into functional polystyrenes" Ledoux, A.; Brunet, J.; Raynaud, J.; Lacôte, E. *Angew. Chem. Int. Ed.* **2019**, *58*, 15239-15243.

8) "Polyboramines: Polymers featuring Lewis Pairs in their backbone for Hydrogen Release" Ledoux, A.; Larini, P.; Boisson, C.; Monteil, V.; Raynaud, J.; Lacôte, E. *Angew. Chem. Int. Ed.* **2015**, *54*, 15744-15749. VIP paper (top 5% *Angewandte* accepted manuscripts).

- Organopolyoxometalates

9) "Elucidation of the Conformation of Polyglycine Organo-Polyoxotungstates: Evidence for Zipper Folding" Vilona, D.; Lachkar, D.; Dumont, E.; Lelli, M.; Lacôte, E. *Chem. Eur. J.* **2017**, *23*, 13323-13327.

10) "Grafting of Secondary Diol-Amides onto [P₂W₁₅V₃O₆₂]⁹⁻ Generates Hybrid Heteropoly Acids" Lachkar, D.; Vilona, D.; Dumont, E.; Lelli, M.; Lacôte, E. *Angew. Chem. Int. Ed.* **2016**, *55*, 5961-5965.