

Dr. Audrey LLEVOT

30/09/1988

Assistant professor

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Education and qualifications

2008-2011: **Graduate School of Chemistry, Biology and Physics, Specialization in Polymer Science**, Bordeaux (France). www.enscbp.fr

- MSc by research in polymer and colloidal sciences

2006-2008: **Two-year intensive undergraduate studies in Physics, Chemistry and Math**, Bayonne (France)

- Leading to a selective exam for admission to French Engineering Schools

2006: **French secondary school diploma with mathematic specialization and sport option**, Bayonne (France)

Work experience

09/2017- : **Assistant professor at Bordeaux INP (Institut Polytechnique de Bordeaux)**, Bordeaux (France). <http://www.lcpo.fr>

- Research in polymer chemistry at the LCPO (Laboratory of Chemistry of Organic Polymers), permanent member of the polymerization catalysis & engineering team.
- Teaching polymer science, analytical and organic chemistry at the graduate school of chemistry, biology and physics (ENSCBP)

03/2015-08/2017: **Post doc position at KIT (Karlsruhe Institute of Technology)**, Karlsruhe (Germany) Group of Prof. Michael Meier.

- Synthesis of 2D polymers, renewable polymers, catalysis, sequence controlled polymeric layer growth on surfaces by thiol-ene chemistry, mini-emulsion polymerization of monomers synthesized by multicomponent reactions.
- Supervising practical work in organic chemistry

11/2011-12/2014: **Ph.D in Polymer sciences at the LCPO (Laboratory of Chemistry of Organic Polymers)**, Bordeaux (France). <http://www.lcpo.fr>

Resinic acid and lignin derivative dimers, as sources of (co)monomers for the design of novel renewable polymers

- Investigated dimerization of abietic acid and enzymatic coupling of phenolic compounds
- Chemically modified dimers to build a biphenyl platform
- Synthesized and characterized polyesters, polyamides and epoxy resins from the resulting dimers
- Managed 4 interns, bachelor and master students, teaching experience in organic chemistry for bachelor students, supervising practical work of bachelor students in organic chemistry

04/2011-09/2011: **Master thesis at YKI**, Stockholm (Sweden). <http://www.yki.se/>

Synthesis and characterization of low refractive index films of mesoporous silica using Pluronic and a low toxicity swelling agent

12/2010-03/2011: **Application of gold nanoparticles to the diagnostic and therapy of cancer**, Group of molecular nanosciences and catalysis, Bordeaux (France)

- 4 month literature project for the MSc in Polymer and colloidal sciences

07/2010-12/2010: **Engineering internship at the INRS (National Institute of Scientific research) Quebec (Canada).** <http://www.inrs.ca/>
Use of an Ion Exchange technique to determine free metal concentrations in different algae growth media

Scientific production

PATENTS:

Llevot, A., Cramail, H., Carlotti, S., Grau, G., Grelier, S. *New process for preparing biphenyl compounds*, 2014, EP14306566.2

Llevot, A., Cramail, H., Carlotti, S., Grau, G., Grelier, S. *New phenolic polymers and preparation processes thereof* 2014, EP14306563.9

ARTICLES:

1. Llevot, A. and Astruc, D.*, *Application of gold nanoparticles to the diagnostic and therapy of cancer*, Chemical Society Review, 2012, **41**, 242-257
2. Mantzaridis, C., Brocas, AL., Llevot, A., Cendejas Santana, G., Auvergne, R., Caillol, S., Carlotti, S.*, Cramail, H., *Rosin acid oligomers as precursors of DGEBA-free epoxy resins*, Green Chemistry, 2013, **15**, 3091-3098
3. Brocas, AL., Llevot, A., Mantzaridis, C., Cendejas Santana, G., Auvergne, R., Caillol., Carlotti, S.* and Cramail, H., *Epoxidized rosin acids as co-precursors for epoxy resins*, Designed Monomers and Polymers, 2014, **17**, 301-310
4. Llevot, A., Grau, G., Carlotti, S., Grelier, S.*, Cramail, H.*, *Dimerization of Abietic Acid for the Design of Renewable Polymers from ADMET*, European Polymer Journal, 2015, **67**, 409-417
5. Llevot, A., Grau, G., Carlotti, S., Grelier, S., Cramail, H., *La résine de pin, source de nouveaux polymères ?*, Actualité Chimique, novembre 2014 n°390
6. Llevot, A., Grau, G., Carlotti, S., Grelier, S., Cramail, H., *Laccase-catalyzed selective dimerization of phenolic compounds derived from lignin*, Journal of Molecular Catalysis B: Enzymatic, 2016, **125**, 34–41
7. Llevot, A., Grau, G., Carlotti, S., Grelier, S., Cramail, H.*, *Renewable (semi)aromatic polyesters from symmetrical vanillin-based dimers*. Polymer Chemistry, 2015, **6**, 6058-6066
8. Llevot, A., Grau, G., Carlotti, S., Grelier, S., Cramail, H.* *ADMET polymerization of bio-based biphenyl compounds*, Polymer Chemistry, 2015, **6**, 7693-7700
9. Llevot, A., Grau, G., Carlotti, S., Grelier, S., Cramail, H.*, *From lignin-derived aromatic compounds to novel bio-based polymers*, Macromolecular Rapid Communications (mini-review), 2016, **37**, 9-28
10. Boukis, AC., Llevot, A, Meier, M. A. R.*, *High Glass Transition Temperature Renewable Polymers via Biginelli Multicomponent Polymerization*, Macromolecular Rapid Communications, 2016, **37**, 643-649
11. Llevot, A.*; Dannecker, P.; von Czapiewski, M.; Over, L. C.; Söyler, Z.; Meier, M. A. R.* *Renewability is not enough: Recent advances in the sustainable synthesis of biomass derived monomers and polymers* Chemistry - A European Journal 2016, **22**, 11510-11521.
12. Llevot, A.*; Meier, M. A. R.*, *Renewability - a principle of utmost importance!*, Green Chemistry, 2016, **18**, 4800-4803.

13. Llevot, A.*; Hufendiek, A.*, *Biobased polyesters and polyamides: Quo vadis*, European Polymer Journal, 2016, **85**, 647-648.
14. Llevot, A.*, *Sustainable Synthetic Approaches for the Preparation of Plant Oil-Based Thermosets*, Journal of the American Oil Chemists' Society, 2016, 1-18.
15. Llevot, A.; Boukis, A.C.; Oelmann, S.; Wetzl, K.; Meier, M. A. R.*, *An Update on Isocyanide-Based Multicomponent Reactions in Polymer Science*, Topics in Current Chemistry, 2017, **375**, 66.
16. Llevot, A.; Monney, B.; Sehlinger, A.; Behrens, S.*; Meier, M.A.R.*, *Highly efficient Tsuji-Trost allylation in water catalyzed by Pd-nanoparticles*, Chemical Communications 2017, **37**, 5175-5178.
17. Llevot, A.; Steinmüller, S.O.; Bitterer, B.; Ridder, Berson, B. J.; Walheim, S.; Schimmel, T.; Bräse, S.; Scheiba, F.; Meier, M.A.R.*, *Sequence-controlled molecular layers on surfaces by thiol-ene chemistry: synthesis and multitechnique characterization*, Polymer Chemistry 2017, **8**, 5824-5828.
18. Llevot, A.*, Meier, M.A.R., *Perspective: green polyurethane synthesis for coating applications*, Polymer international 2018, DOI: 10.1002/pi.5655.
19. Moock, D., Steinmüller, S. O., Wessely, I. D., Llevot, A., Bitterer, B., Meier, M. A. R., Bräse, S., Ehrenberg H., Scheiba F., *Surface Functionalization of Silicon, HOPG and Graphite Electrodes: towards an Artificial Solid Electrolyte Interface (SEI)*, ACS Applied Materials & Interfaces 2018, **10**, 24172-24180.
20. Klein, G., Llevot, A.*, Löser, P., Bitterer, B., Helfferich, J., Wenzel, W., Barner-Kowollik, C., Meier, M. A. R.*, *On the macrocyclization selectivity of meta-substituted diamines and dialdehydes: towards macrocycles with tunable functional peripheries*, Journal of Inclusion Phenomena and Macrocyclic Chemistry 2019, **95**, 119-134.
21. Löser, P., Rauther, P., Meier, M. A. R.*, Llevot, A.*, *Sustainable catalytic rearrangement of terpene-derived epoxides: towards bio-based biscarbonyl monomers*, Philosophical Transaction of the Royal Society A 2020, **378**, 0190267.
22. Jia, Y., Matt, Y., An, Q., Wessely, I., Mutlu, H., Theato, P., Bräse, S., Llevot, A.*, Tsotsalas, M.*, *Dynamic covalent polymer networks via combined nitroxide exchange reaction and nitroxide mediated polymerization*. Polymer Chemistry 2020, **11**, 2502-2510.

COMMUNICATIONS

Posters

Löser, P., Meier, M.A.R, Llevot, A. *, *Sustainable synthesis of biobased recyclable thermosets*

- 3rd Green & Sustainable Chemistry Conference, Berlin Germany, May 13-16 (2018)
- Bordeaux Polymer Conference (BPC) 2018, Bordeaux France, May 28-31 (2018)

Löser, P., Windbiel, J., Doll, L., Llevot, A. *, *Sustainable synthesis of biobased degradable thermosets*

- The 12th International Conference on "Advanced Polymers via Macromolecular Engineering" (APME), Ghent Belgium, May 21-25 (2017)

Windbiel, J., Doll, L., Llevot, A. *, *Sustainable synthesis of biobased recyclable thermosets: towards greener materials*

- Global Young Scientists Summit (GYSS), Singapore, January 15-20 (2017)

Hordijk, P., Sehlinger, A., Llevot, A. *, Meier, M. A. R., *Miniemulsion polymerization of new acrylate monomers synthesized via multicomponent reactions*

- Warwick 2016 "The polymer conference", Warwick England, July 11-14 (2016)

Llevot, A., Grau, G., Carlotti, S., Grelier, S., Cramail, H. *, *Synthesis, purification and modification of abietic acid dimer, an interesting source of (co)monomers for the design of novel renewable polymers*

- 6th workshop on fats and oils as renewable feedstock for the chemical industry, Karlsruhe Germany, March 17-19 (2013).
- EPF congress, Pisa Italy, June 16-21 (2013).
- 4^{ème} colloque recherche de la Federation Gay Lussac, Paris France, December 4-6 (2013)

Oral presentations

Llevot, A., *Sustainable Synthesis of Bio-based Recyclable Thermosets*

- **Invited talk:** 2021 AOCS annual meeting, May 6-9 (2021)

Llevot, A.*, *Synthesis of resinic acid and lignin derivative dimers for copolymerization with vegetable oil-based monomers*

- **Invited talk:** 2018 AOCS annual meeting, Minneapolis USA, May 6-9 (2018)

Llevot, A.*, *Sustainable synthesis of aromatic biomass-derived monomers and polymers*

- **Invited talk:** GDR Symbiose (SYnthons et Matériaux BIOSourcEs) 2017, Montpellier France, May 29-June 1 (2017)
- Seminar at the Institute for Polymer Materials (Polymat), San Sebastian Spain, June 8 (2017)

Löser, P., Windbiel, J., Doll, L., Llevot, A.*, *Sustainable synthesis of biobased degradable thermosets*

- Symposium International on Green Chemistry, La Rochelle France, May 16-19 (2017)

Llevot, A., Meier, M.* , *Sustainable approaches to monomers and polymers from renewable resources*

- Frontiers of Green Materials, London England, December 12 (2016)

Llevot, A., Grau, G., Carlotti, S., Grelier, S., Cramail, H.* , *Abietic Acid Dimers: a Promising Source of Monomers for the Design of Novel Renewable Polymers*

- 41^{ème} Journée d'Etudes des Polymères (JEPO), Aussois France, September 15-20 (2013)
- Journée Thèse des Bois, Bordeaux France July 2 (2014)
- Macro IUPAC, Chiang Mai Thailand, July 6-11 (2014)

Grants

2021 ANR JCJC CARBHEAL 190 k€ (coordinator)

“Metal-carbene-based dynamic polymer networks: self-healing functional materials”

2021 AAP post doc LCPO 3dPILs 60 k€ (partner)

“Reconfigurable networks obtained from readily 3D-printable poly(ionic liquid)s”

2020 AAPES Conseil Régional Nouvelle-Aquitaine 215 k€ (coordinator)

“Développement des travaux pratiques de mise en forme et caractérisation de la matière dans le cadre de la mise en place de nouveaux parcours personnalisables”

2019 AAP accompagnement des MCF Bordeaux INP 4 k€ (coordinator)

“Elaboration of organometallic polymers for catalytic applications”

2016 Research Seed Capital (RiSC) ministry of sciences, research and arts of Baden- Wuerttemberg, MWK 100 k€ (coordinateur)

“Sustainable synthesis of biobased recyclable thermosets”

Supervision

Ph.D students:

2020- : Dijwar Yilmaz “Polymères auto-réparants en environnement spatial” (co-supervision with Pr. S. Carlotti)

2016-2020: Pia Löser “Sustainable synthesis of biobased recyclable thermosets“ (co-supervision with Pr. M. Meier)

Engineer:

2020- : Vaïana Royer “Preparation of elastic films from aqueous dispersions of bloc copolymers“ (co-supervision with Pr. D. Taton et S. Lecommandoux)

Interns:

Since 2017 :1 Bachelor student, 2 Master 1, 2 Master 2

Awards and achievements

2016: Research Seed Capital (RiSC) funding (Ministry of Science, Research and Arts of Baden-Wuerttemberg, MWK)

Selected to participate in the Global Young Scientists Summit (GYSS), Singapore, January 15-20 (2017)

Poster award: Warwick 2016 “The polymer conference”, England

2013: Travel grant for the 6th workshop on fats and oils as renewable feedstock for the chemical industry, Karlsruhe, Germany

Poster awards: 6th workshop on fats and oils as renewable feedstock for the chemical industry, Karlsruhe, Germany and EPF congress, Pisa Italy

Additional scientific activities

Refereeing for scientific journals (*European Polymer Journal, Green Materials, Green Chemistry, Journal of American Oil Chemists' Society and ACS Sustainable Chemistry & Engineering*)

Helping for the organization of scientific conferences: 8th and 9th Workshop on Fats and Oils as Renewable Feedstock for the Chemical Industry, BEPS (2015), Nachhaltige Chemie (2016).

Member of the organizing committee of the Bordeaux Polymer Conference 2018 (BPC) and JEPO 2019.