



# Maxime RAMMAL

PhD with excellent laboratory skills in organic chemistry, chemistry and physical chemistry of polymers, colloid science as well as in optoelectronic devices fabrication. Highly motivated, optimistic and productive junior research scientist, used to work under pressure, either independently or as a part of a team. I am now seeking to further develop my career in scientific research laboratory.

## Industrial Postdoctoral fellow:

### Synthesis of PolyQuinoline (PQ) semiconductor materials for Entegris application

*CBE - University California - Irvine*

*January 2022-present*

Research and development position in collaboration with **Entegris** (global leader in advanced materials science) and under the supervision of **Pr Alon Gorodetsky**, involves the synthesis and the characterization of new PQ polymer dedicated to semiconductor industry.

## PhD:

### Conjugated polymer nanoparticles for eco-efficient processing of organic photovoltaic cells

*ICPEES - CNRS - University of Strasbourg*

*November 2017-June 2021*

My multidisciplinary PhD thesis realized under the supervision of **Dr Anne HEBRAUD**, involved :  
Synthesizing novel organic semi-conductor polymers, elaborating nanoparticles with their full characterization, creating new green – environmentally friendly optoelectronic devices based on nanoparticles.

## Masters:

### Master's degree in chemistry: molecular and macromolecular chemistry + internship

*University of Bordeaux*

*September 2015- June 2017*

A master's degree offered rigorous, theoretical and practical, knowledges, in organic, organometallic, supramolecular, catalysis, self-assembly and polymer chemistry, as well as physical-chemistry of materials. During these 2 years, I had the opportunity to accomplish 6 months internship at the **LCPO - CNRS - Bordeaux - FRANCE**, under the supervision of **Pr Stéphane CARLOTTI** and **Dr Frédéric PERUCH**. Internship titled: Study of the polymerization of lactones for the synthesis of new copolymers.

## Bachelors:

### Bachelor's degree in general chemistry

*Lebanese University*

*October 2012- September 2015*

## Achievements

- Fully complied with health and safety regulations in the lab.
- Synthesized novel semi-conductor polymers.
- Established full studies about nanoparticle's elaboration by miniemulsion or nanoprecipitation.
- Characterized deeply nanoparticle's compositions, morphologies and structures.
- Improved brilliantly the quality of films used as active layer for optoelectronic devices. Those films were obtained using a suspension of stable nanoparticles in water.
- Fabricated green photovoltaic cells based on water nanoparticles suspension, with an encouraging power conversion efficiency yield.
- Skilled at communicating my scientific work in the form of presentations or written reports.
- Managed project financing and collaboration.
- Increased my teaching competencies due to teaching cursus or by monitoring students during their internships.

## Professional Skills:

- Organic synthesis, column chromatography
- Spectroscopy: NMR ( $^1\text{H}$  &  $^{13}\text{C}$ ), IR, Mass (samples preparation and analysis).
- Thermal Analysis: TGA & DSC (samples preparation and analysis).
- Optical analysis: UV-Visible, Fluorescence.
- Electro-analysis: Conductimetry, cyclovoltammetry.
- Dynamic Light Scattering (DLS).
- Films fabrication by spin coating or Dr blade.
- Microscopic analyses: optical microscopy, AFM, SEM, TEM & STXM.
- Preparation of optoelectronic devices and their characterizations (PV, OFET, SCLC) – inside glove box.
- Working cautiously in the cleanroom.
- Organizational skills related to teaching.

## Publications:

- Participation in the writing of a chapter of a book published by CNRS Editions within the framework of the year of Green Engineering : « Des procédés éocompatibles pour des panneaux photovoltaïques organiques », A. Hébraud, T. Heiser, **M. Rammal**, I. Rodriguez-Donis, S. Thiebaud-Roux.
- **Rammal M**, Patrick Lévêque, Guy Schlatter, Nicolas Leclerc, and Anne Hébraud. "Recent Advances in the Green Processing of Organic Photovoltaic Devices from Nanoparticle Dispersions." *Materials Chemistry Frontiers*, 2020, 4(10), 2904-2931.
- New article should be available online beginning of April: The elaboration of green optoelectronic devices based on nanoparticles made by miniemulsion / *Materials advances* – **lead author**.
- 2<sup>nd</sup> article related to nanoprecipitation of novel semi-conductor polymers in aqueous solutions (last touches- *unknown journal*) – **lead author**

**Languages:**

- French: mother tongue.
- Lebanese: mother tongue
- English: reading, writing, speaking (fluently).
- Spanish: beginner.

**Informatics and programming:**

- Microsoft office (word, Excel, PowerPoint).
- ChemDraw.
- ImageJ, Fityk, Axis.
- topSpin (Bruker).
- Origin, Python.

**Hobbies & membership:**

- Soccer (Licensed referee - French Football Federation FFF since 2018).
- Voluntary member in the association "les Disciples" – Strasbourg: Helping students through their education - Middle School and High School.