Jérémie Margueritat

CNRS Researcher (Chargé de Recherche, CRCN) · Institut Lumière Matière (iLM, UMR 5306) · CNRS & Université Claude Bernard Lyon 1
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Experimental physicist working on inelastic light scattering (Brillouin, Raman and low-frequency Raman) to probe the mechanical properties of matter — from the acoustic vibrations of single nano-objects and their assemblies to the elasticity of living cells and tissues. Research at the interface of condensed-matter physics, nano-optics, colloidal chemistry and biophysics.

CURRENT POSITION

Since 2011 CNRS Researcher (CRCN), Institut Lumière Matière (iLM), Lyon, France.

PREVIOUS POSITIONS

2010–2011 Postdoctoral researcher, Institut Carnot de Bourgogne (ICB), Dijon — FP7 project SPEDOC (plasmonic detection of the HSP70 cancer biomarker).

2009–2010 Postdoctoral researcher, ITODYS, Paris — ANR P-NANO ANTARES (molecular plasmonics, surface-enhanced Raman spectroscopy).

2008–2009 Postdoctoral researcher, Institut Carnot de Bourgogne (ICB), Dijon — ANR P-NANO ANTARES (plasmonic optical antennas, near-field optics).

EDUCATION

2018 Habilitation à diriger des recherches (HDR), Université Claude Bernard Lyon 1.

2004–2008 PhD in Materials Physics & Nanophysics, Instituto de Óptica (CSIC, Madrid) & Université Paul Sabatier (Toulouse). Distinctions: Doctor Europeus, Suma Cum Laude.

RESEARCH INDICATORS

- 65 peer-reviewed articles · ~1,835 citations · h-index 24 (OpenAlex, 2026).
- 22 conference talks, including 6 invited.
- > 1 M€ secured as coordinator / principal investigator.

FUNDING & GRANTS

2022–present VIRUSong — EIC Pathfinder-Open. Coordinator (€6M total; €1M for iLM).

2021 NanoElastic — Emergence@INC (CNRS). Coordinator (€70k).

2013–2016 NANOVIP — ANR Jeune Chercheur (ANR-13-JS10-0002). Principal Investigator (€207k).

2016 iLM internal call. Coordinator (€25.5k).

2012 FRAMA. Coordinator.

Partner ANR MACAO (2019–2023), ANR PoroTume (2018–2021), ANR DeXCTer (2023–2027).

SUPERVISION & MENTORING

- **PhD students:** A. Girard (2013–2016), Q. Martinet (2016–2019), M. I. Shaik (2023–2026), M. Bandurist (2023–2026), T. T. Dung (2024–2027).
- **Postdoctoral researchers:** H. Géhan (2013–2015), M. Timm (2020–2022), P. Bauer (2021–2022).
- ~1 MSc / undergraduate intern per year.

TEACHING

- Geometrical optics — practicals & tutorials, L1 (IUT), Université Lyon 1.
- “Arduino for data acquisition & analysis” — M1, Université Lyon 1.

(64 h/year)

RESPONSIBILITIES & SERVICE

- Co-lead, “Optomechanics & nanostructures” theme, Luminescence team, iLM (since 2023); formerly “vibrations of nanoparticles” theme (2016–2019).
- Board member, International BioBrillouin Society (since 2022); Management Committee, COST Action BioBrillouin (2017–2021).
- Elected member, iLM institute council (2013–2017); Health & Safety coordinator, iLM (2013–2016); UCBL Europe cell (since 2024).
- Organizer of international schools & conferences (Son et Lumière; “Phonons dans les milieux complexes”, 2025–2026; Brillouin microscopy workshops).

EXPERTISE & REVIEWING

- Reviewer for international journals (ACS Photonics, ACS Nano, J. Appl. Phys., …).
- 6 PhD committees; 2 faculty hiring committees (Maître de conférences, section 28).
- Project evaluator (I-SITE ULNE 2019; German-Israeli Foundation 2021).

SELECTED PUBLICATIONS

- M. I. Shaik, N. Blanchard, B. Mahler, P. Török, J. Margueritat, *Contact-to-connectivity crossover in the vibrational dynamics of nanoparticle assemblies.* Soft Matter (2026). doi:10.1039/D6SM00658B
- Q. Martinet, J. Baronnier, A. Girard, … , J. Margueritat, B. Mahler, *Ligand-dependent nano-mechanical properties of CdSe nanoplatelets: calibrating nanobalances for ligand-affinity monitoring*. Nanoscale 13, 8639 (2021). doi:10.1039/D1NR00270H
- J. Margueritat, A. Virgone-Carlotta, S. Monnier, … , *High-frequency mechanical properties of tumors measured by Brillouin light scattering*. Phys. Rev. Lett. 122, 018101 (2019) — Editor’s Suggestion. doi:10.1103/PhysRevLett.122.018101
- A. Girard, H. Gehan, A. Mermet, J. Lermé, … , J. Margueritat, *Acoustic mode hybridization in a single dimer of gold nanoparticles.* Nano Lett. 18, 3800 (2018). doi:10.1021/acs.nanolett.8b01072
- A. Girard, H. Gehan, A. Crut, A. Mermet, L. Saviot, J. Margueritat, *Mechanical coupling in gold nanoparticle supermolecules revealed by plasmon-enhanced ultralow-frequency Raman spectroscopy*. Nano Lett. 16, 3843 (2016). doi:10.1021/acs.nanolett.6b01314
- J. Margueritat, J. Gonzalo, C. N. Afonso, A. Mlayah, … , *Surface plasmons and vibrations of self-assembled silver nanocolumns.* Nano Lett. 6, 2037 (2006). doi:10.1021/nl061237h

Full list (65 articles) and up-to-date metrics: ORCID 0000-0003-2075-1875

SKILLS & LANGUAGES

- **Experimental:** low-frequency Raman & Brillouin spectroscopy, single-particle inelastic light scattering, confocal microscopy, optical instrumentation.
- **Computational:** Python, Arduino; contributor to the open-source PyMoDAQ data-acquisition framework.
- **Languages:** French (native), English (C1), Spanish (C1).