

Caterina Dasmi

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I am a polymer chemist with strong analytical and problem-solving skills, specializing in the design and processing of advanced materials. My recent work focuses on hybrid nanocomposites for thermoplastic reinforcement and network formation in linerless pressure-sensitive adhesives (PSAs). Leveraging language skills and adaptability, I have cultivated international experience through studying and working across three different countries.

AREAS OF EXPERTIES

Polymer chemistry | Emulsion polymerization | Radical polymerization | Free radical | Pickering | Miniemulsion | RAFT | Linear rheology | PSAs | Hybrid nanocomposites | Vitrimers

SKILLS

Languages:

- Fluent in Italian, English, French and Spanish.
- Proficient in Portuguese.

Laboratory Skills:

- Polymer characterization: SEC | NMR (^1H , ^{13}C) | FTIR | UV-Vis | Elemental analysis | DLS
- Material processing: Film casting | Compression moulding
- Thermal & mechanical analysis: DSC | TGA | Rheology (SAOS, DMA frequency sweeps, stress relaxation) | PSA testing (tack, peel adhesion and shear resistance)
- Microscopy: Optical | TEM | SEM | Confocal | Cross-sectioning

Computer Skills:

- Scientific writing & presentation: Microsoft Word | PowerPoint | LaTeX (Overleaf)
- Data analysis & visualization: Excel | Fiji | Origin | Python (Matplotlib) | R (RStudio)
- Spectroscopy & data processing: MestReNova
- Reference management: Endnote | Zotero

PROFESSIONAL AND ACCADEMIC EXPERIENCE

PhD in Chemistry at Université Claude Bernard Lyon 1, CP2M - February 2024-Present

Supervisors: Prof. Elodie Bourgeat-Lami and Dr. Damien Montarnal

Project: "Design of hybrid particles for the extension of the fatigue lifespan of thermoplastic nanocomposites"

- Design of a strategy to synthesize model nanocomposite materials with independently tuneable filler size, filler dispersion, and interfacial cohesion between the filler and the polymer matrix, to enable a systematic investigation of the respective roles of these parameters on macroscopic rheological and fatigue properties.
- Thorough investigation of the chain topology at the interphase to prove the formation of "loops" during a grafting-through approach.
- Synthesis of hybrid nanocomposite materials with dynamic crosslink moieties (vitrimers).

MRes in Chemistry at University of Warwick - October 2024-October 2023

Supervisor: Prof. dr. ir. Stefan Bon

Project: "Characterization of a Linerless On-demand Pressure Sensitive Adhesive"

- Investigation of the structure-properties relationship of a binary mixture of polymer latexes which can be used as an on-demand linerless PSA.
- Synthesising of both polymers *via* semi-batch emulsion polymerization, followed by film formation of homogeneous films and investigating the reproducibility of the system as well as its properties.

Internship at Baker Hughes - January 2022 - July 2022

Team: Innovation Team, at a world-leading energy technology company.

Main task: To participate in an interdisciplinary team researching, analysing and opining on sustainable energy solutions, from start-ups and universities with the goal of financing/ buying the technology.

BSc with Honours of the First Class in Chemistry at University of Glasgow - 2017-2021

Subsidiary Subjects: Mathematics year one and two, Psychology year one.

Project Supervisor: Prof. Bernhard Schmidt

Project: "Stimuli-responsive High Molar Mass Block Copolymers *via* Photoinduced RAFT Polymerization"

- Focusing on photocontrolled reversible addition-fragmentation chain transfer (RAFT) polymerization.
- Synthesis of stimuli-responsive block-co-polymers, for the formation of micelles for drug delivery.

CITIZENSHIP: Italian, EU right of abode, UK right to abode and work.

I authorise the use of personal data contained in my resume pursuant EU Regulation 2016/679.