

Qi Wu

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Profile: Surface science and optical metrology researcher with expertise in surface modification, ATR-FTIR spectroscopy, and optical simulations. 4+ years of hands-on cleanroom experience and a strong record of building experimental platforms & integrating hardware-software pipelines. Actively interested in how machine learning will be integrated into future tasks.

EDUCATION

Ph.D. in Chemistry KU Leuven <i>Scholarship-funded research on nanopatterned-surface wettability, ATR-based characterization, and semiconductor-relevant surface engineering.</i>	2022-Sep. 2026 (expected) Leuven, Belgium
M.Sc. in Electrical Engineering University of Twente	2019-2021 Enschede, the Netherlands
B.Eng. in MEMS Engineering Northwestern Polytechnical University	2015-2019 Xi'an, China

SKILL

Characterization & Metrology

- ATR-FTIR spectroscopy: chemical analysis, extended applications on pattern surfaces
- SEM, AFM, ellipsometry, contact angle measurement

Fabrication & Laboratory

- 2,000+ hours cleanroom experience: wet-etching, self-assembled monolayers CVD
- Experimental platform prototyping: 3D printing, embedded systems development

Software & Data

- Lumerical FDTD optical simulation
- Python, MATLAB

Languages

- English (Professional) and Mandarin (Native)

EXPERIENCE

Ph.D. Researcher	2022-2026 KU Leuven & IMEC, Leuven, Belgium
<ul style="list-style-type: none">• Developed a custom ATR-FTIR platform for real-time wetting characterization of patterned surfaces. Built analytical + experimental frameworks for quantitative spectra interpretation.• Designed optical alignment, fluidic control, and automated data-acquisition routines; technology extended into an internal patent application for semiconductor process monitoring.• Evaluated density of silane monolayers on nanopatterned Si using wetting characterization to quantify the CVD process window. Work received the Best Student Paper Award, UCPSS 2025.• Upgraded the conventional contact-angle system by integrating a dual-axis imaging module and image-processing scripts, enabling quantitative analysis of anisotropic droplet spreading on nano-grooved surfaces.• Conducted wettability studies on high-aspect-ratio patterns, correlating surface geometry with wetting transitions and anisotropic wetting behavior.	
Intern	2021, ARCNL, Amsterdam, the Netherlands
<ul style="list-style-type: none">• Performed mechanical simulations to model stress and strain in elastomer microstructure arrays used in low-wear wafer carriers.• Collaborated with cleanroom specialists in an industrial-research environment.	

INTERESTS

- Tennis, bouldering, hiking
- DIY electronics invention