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Yuyang Wang

Curriculum Vitae

An enthusiastic and adaptive person with a broad and astute interest in nanotechnology, optics and computer science.

Motivation

I am a highly-motivated young professional with proven ability in research and development in the field of applied physics, chemistry and advanced data analytics. I enjoy working in highly-innovative scientific and engineering projects, and collaborating with scientists and engineers from various disciplines to solve cutting-edge challenges. I am now seeking an exciting role as a step forward in my career. I believe I can fully apply my problem-solving skills and specialized expertise in assisting your company excel in delivering leading innovations.

Experience

2015–2019 **PhD researcher**, *Institute of Complex Molecular Systems,* ***TU/e***, Eindhoven.

- **Physical chemistry of nanoparticles:**
  - Investigated the various unique optical properties of metal nano-particles with dimensions < 100 nm for single biomolecule sensing;
  - Developed the research field of plasmon-enhanced single-molecule enzymology in which nanoparticles are used to enhance the single-molecule fluorescence originated from individual enzymatic turnovers;
  - Developed robust bioconjugation appoaches of nanoparticle-protein and -DNA bioconjugates for single-molecule spectroscopy;
- **Single-molecule fluorescence microscopy:**
  - Acquired extensive knowledge in designing and realizing optics for ultra-senstive single-molecule detections;
  - Developed novel methods for the detection and understanding of nanoparticle-enhanced single-molecule fluorescence;
  - Developed shared with colleagues various MATLAB programs for advanced image processing and data analysis, and developed publishable numerical simulation models of single-molecule photophysics and electromagnetics;
- **Teaching assistant (aio)**
  - Coached bachelor-level optics, ranging from ray optics to modern fourier optics;
  - Supervised last year bacholer students with applied physics and bio-medical engineering background to complete their Bachelor-End-Projects in different challenging research contexts.

Highlights and achievements

- Published 1st author journal article about the results based on a numerical model combining electromagnetics and molecular dynamics, and systematically predicted the important role of nano-sized metal particles in the study of single enzyme molecules;
- Presented my research results in the form of talks on international conferences in France and Germany, and various domestic conferences and symposium in the form of both talks and poster presentations;
- Won science award in ICMS Industrial Challenge competition. Worked with a multidisciplinary team of PhD's and Post-docs trying to solve a scientific challenge from SABIC, a top petrochemical company. The challenge was to explore state-of-art methods of using super-resolution microscopic techniques to probe the rheology of heterogeneous polymer-nanoparticle composite materials. Our solution might help to expand the scope of of high-performance polymeric products.

2012–2015 **Master student**, *Jilin University*, Changchun, China.

- Trained extensively on molecular physical chemistry and microsphere-based nanolithography, developed long-lasting interest in scientific research;
- Developed a hard inorganic nanostructured anodic aluminum oxide template with a novel morphology.

Highlights and achievements

- Published 1st author journal paper on the fabrication of hierarchically nanostructured anodic aluminum oxide, and presented the potential application in surface-enhanced spectroscopy.

Education

2015–2019 **Doctorate of (bio)-physics**, *Eindhoven University of Technology*, Eindhoven, *PhD defense in 2020*.
Thesis: Plasmon-enhanced single-molecule fluorescence microscopy

2012–2015 **Master of science**, *Jilin University*, Changchun, China.
Thesis: Hierarchical anodic aluminum oxide and its application in surface-enhanced spectroscopy

2008–2012 **Bachelor of science**, *Jilin University*, Changchun, China.
Graduation-project: Preparation of anodic aluminm oxide nanostructure template

Technical skills

- **Optics:** total internal reflection fluorescence microscopy ; confocal fluorescence microscopy ; single-molecule fluorescence microscopy; super-resolution microscopy.
- **Nanophotonics:** nanoparticle plasmonics ; nanoparticle characterization; single-particle light scattering spectroscopy; UV-vis spectroscopy; Boundary-element-method numerical simulations.
- **Nanolithography:** nanosphere lithography; nanostructure fabrication and characterization; Raman spectroscopy; scanning-electron microscopy
- **Physical chemistry:** colloidal chemistry synthesis and characterization; nanoparticle synthesis; bio-nano-interface engineering; bioconjugation.
- **Biochemistry:** protein handling and purifications; DNA nanotechnology; enzymatic assays; ELISA; chromatography.
- **Computer science:** advanced image-processing algorithms; data analytics with Matlab/Python ($>$ 4y exp.); mathematical/statistical modeling; electromagnetic numerical simulations

Interpersonal skills

- Developed strong **teamwork** and collaboration skills by working with professors, PhDs and post-docs, proficient in making efficient and creative plans, interpreting the results and making conclusions by inspiring and active discussions.
- Attended various soft skills courses provided by the univeristy on **public speaking**, **scientific writing** and **intercultural communications**.
- Worked with colleagues from Europe, Asia, US and Australia, and developed the ability to quickly integrate and communicate efficiently in a **multi-cultural environment**.
- Acted as website editor and responsible for the update and maintenance of the group webpage.
- Acted as PhD council representative, organized lab tours and drink/buffet events to promote the communications of PhD's and post-docs.

Language skills

Chinese	Native	*Mother language*
English	IELTS 7.5, tested in 2015	*Proficient*
Dutch	European A2, certified by Ster College, Eindhoven	*Elementary*

Interests

- In my free time, I like reading books, meditation, swimming, learning new human and computer languages and spending time with my family.

References

- **Available on request**

Publications

- My full publication list can be found on Google Scholar or ResearchGate