Teaching Portfolio

Fei Ding
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Teaching Experience

Lecturer and course responsible for Advanced Physics Optics (10 ECTS, Masters), The University of Southern Denmark, Denmark (Spring '20, '21, '22, and '23)
Lecturer and course responsible for Laser Physics & Technology (5 ECTS, Masters), The University of Southern Denmark, Denmark (Fall ’19, '20, '21, and '22)
Lecturer and course responsible for Quantum Engineering (5 ECTS, Masters), The University of Southern Denmark, Denmark (Fall ’19 and '20)
Co-lecturer for Nanophysics (5 ECTS, Masters), The University of Southern Denmark, Denmark (Fall ’17)

Young-Researcher Training (Selected)

2023.01 – 2023.12, Zhengli Han (postdoc). Project: Waveguide-integrated single-photon sources with functional quantum metasurfaces.
2022.02 – 2025.01, Sören Im Sande (PhD student), co-supervisor with Prof. Sergey I. Bozhevolnyi. Project: Integrated single-photon sources with functional quantum metasurfaces.
2021.10 – 2024.09, Yadong Deng (PhD student), co-supervisor with Prof. Sergey I. Bozhevolnyi. Project: Reshaping light with lithium niobite nonlinear metasurfaces.
2019.05 – 2024.07, Dr. Chao Meng (postdoc), co-supervisor with Prof. Sergey I. Bozhevolnyi. Project: Spin-decoupled metasurfaces for controlling classical and nonclassical light.
2021.07 – 2021.12, Sören Im Sande(research assistant). Project: Plasmonic metasurface holography.
2020.10 – 2021.09, Yadong Deng (research assistant). Project: Multifunctional plasmonic metasurfaces.
2017.02 – 2021.02, Rucha A. Deshpande (PhD student), co-supervisor with Prof. Sergey I. Bozhevolnyi. Project: Multipurpose plasmonic phase-gradient metasurfaces.
2019.12 – 2021.04, Cuo Wu (guest PhD student from University of Electronic Science and Technology of China, China). Project: High-performance single-photon sources with metasurfaces.
2019.09 – 2020.06, Sören Im Sande, Master thesis. Project: Multifunctional wave plates using gap-surface plasmon metasurfaces.
2019.09 – 2020.06, Christopher Damgaard-Carstensen, Master thesis, co-supervisor with Prof. Sergey I. Bozhevolnyi. Project: Demonstration of > 2π phase modulation in gap-surface plasmon metasurfaces.

Views on Teaching

Scientific research that enables a better understanding of nature is based on an ever-growing body of existing knowledge and observations. Thus, scientific progress mainly relies on the transfer of skills and knowledge to future generations of researchers. As a researcher at the university, I, therefore, hold the privilege of teaching and mentoring young researchers in the highest esteem.
My formative teaching experiences, including co-lecturing of the graduate-level course Nanophysics and young-researcher training as a postdoctoral research fellow at the University of Southern Denmark (SDU), have helped me develop the teaching philosophy I apply as a faculty member at SDU. I strongly believe that the best way to truly understand a subject, particularly in the physical sciences, is to apply the knowledge obtained in lectures to solve problems, conduct experiments, or carry out research projects. I strive to motivate, challenge, and support students in a progressive learning environment while framing the subject matter within the broader scope of its scientific, technological, and societal importance. Since all my teaching experiences are related to master students with diversities in backgrounds, capabilities, and interests, I make additional efforts to understand the motivation, prerequisites, and expectations of the students. With these goals in mind, I make several changes to prepare the courses by looking at study statistics and course plans to gain an overview of the experience and knowledge of each student, to consider each student, especially the average student, and to consider the methods of teaching and assessment that students encounter.
As a teacher in Physics, I complement traditional face-to-face theoretical lectures with comprehensive teaching notes, problem-solving exercises, and lab exercises, which serve to elucidate concepts and further motivate exceptional students with advanced capabilities. In my opinion, the problem formulation approach (PFA) is an efficient teaching method in which complex and practical problems are used as the target to not only promote student learning of physical concepts and principles. In addition, PFA can promote the development of critical thinking skills and problem-solving abilities, which is important for students in Physics. It can also provide opportunities for working in groups, finding, and evaluating research materials. Meanwhile, PFA can motivate teachers to change their teaching approach and re-organize the teaching materials. To ensure a good overcome, the formulated problem must motivate students to seek out a deeper understanding of concepts and incorporate the content objectives with previous courses/knowledge.

Teaching Capabilities

Capitalizing on my education, teaching experiences, and research, I can teach any courses on basic physics, solid state physics, electromagnetism, optics, and semiconductor physics at both the bachelor- and master-level. I am also qualified

to teach introductory university courses in physics and mathematics.
As a university faculty member, I have been responsible for three courses over the last several years, where I have implemented face-to-face classroom teaching, in-class problems, and lab exercises. Teaching material combines textbook reading, self-prepared notes, presentations, and blackboard.
I have co-supervised bachelor, master, and PhD theses, and am the day-to-day main supervisor of both PhD and postdoctoral researchers.