

Seminar announcement

Friday, September 6, 2024 1:00 pm WSI, Seminar room S 101 Exclusively in person

"Semiconductor nanowire arrays – materials, devices and applications"

III-V compound semiconductor nanowires have drawn much attention as nanoscale building blocks for optoelectronic/photonic integration owing to their nanoscale size, excellent optical and electrical properties, and strain relaxation ability for lattice-mismatched systems enabling epitaxial growth of a wide range of high quality materials and structures. In particular, highly uniform, ordered, vertical nanowire arrays exhibit strong geometry related light matter interaction properties, offering unique flexibility for the design of a variety of geometry-tunable high performance and multifunctional light emission and detection devices. In this work, I will present our recent work on design, growth and fabrication of III-V semiconductor nanowire array based materials (such as InP), structures (such as InGaAs/InP quantum wells) and devices (including LEDs, photodetector, and self-powered photovoltaic gas sensors), for the development of next generation highly integrated photonic/optoelectronic systems and IoTs.



Lan Fu is a Professor and Head of the Department of the Electronic Materials Engineering at the Research School of Physics, the Australian National University (ANU). Lan Fu's main research interests include design, fabrication and integration of optoelectronic devices (LEDs, lasers, photodetectors and solar cells) and chemical sensors, based on low-dimensional III-V compound semiconductor structures including quantum wells, self-assembled quantum dots and nanowires grown by metal-organic chemical vapour deposition (MOCVD). Prof. Lan Fu was the recipient of the IEEE Photonic Society Graduate Student Fellowship and Distinguished Lecturer Award, Australian Research Council Postdoctoral Fellowship, ARF/QEII Fellowship and Future Fellowship. She is the current Chair of IEEE Photonics Journal, Beilstein

Journal of Nanotechnology, and member of Editorial Board of Opto-Electronic Advances and npj Nanophotonics. She is also the current vice-Chair of the Australian Academy of Science National Committee on Materials Science and Engineering, and vice-President of the Australian Materials Research Society (AMRS). She has been recognised by CosmosMagzine as one of the "50 Women of the Cutting edge of science in Australia" in 2023.

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