



Semiconductor Nanostructures for Optoelectronics Applications

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Melbourne Centre for Nanofabrication

151 Wellington Road, Clayton, 3168

Zoom link: [click here](#)

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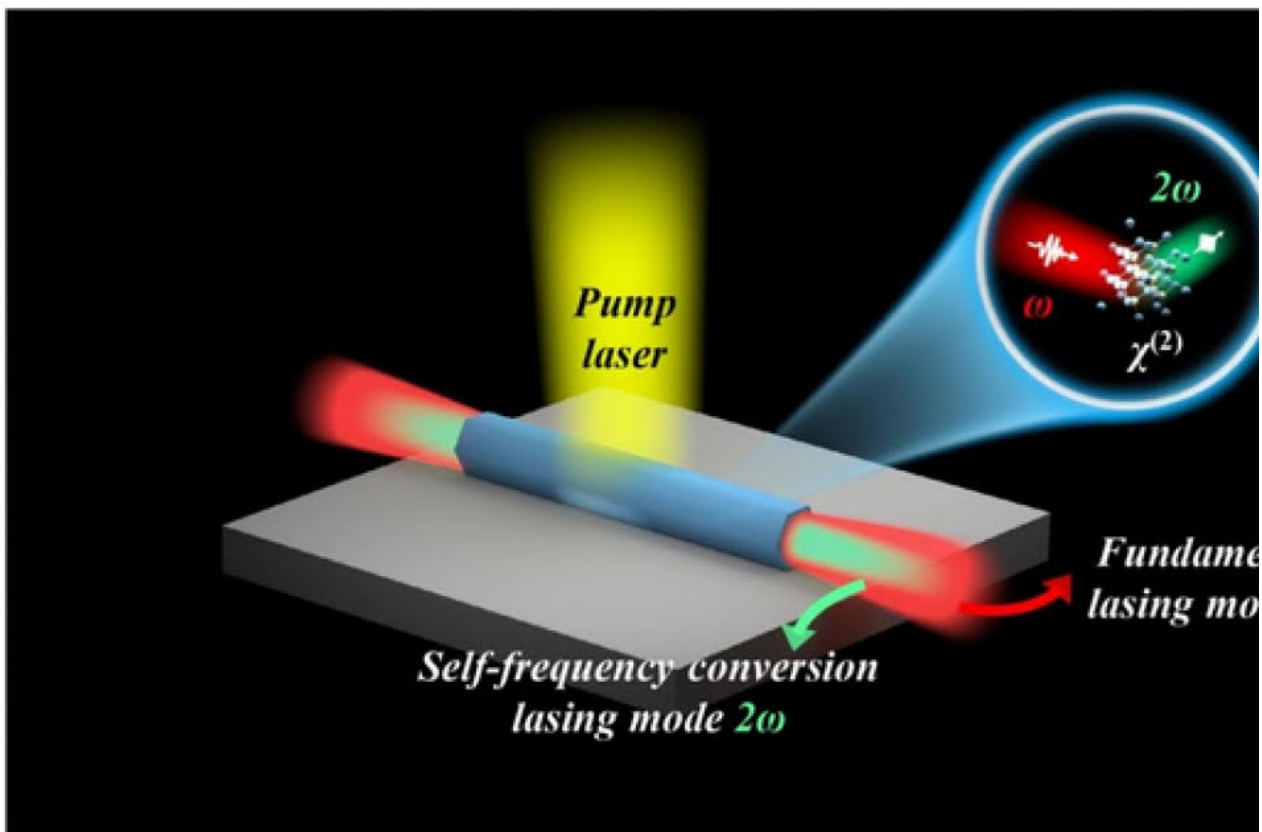
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Abstract:

Semiconductors have played an important role in the development of information and communications technology, solar cells, solid state lighting. Nanowires are considered as building blocks for the next generation electronics and optoelectronics. In this talk, I will present the results on growth of nanowires, nanomembranes and microrings and their optical properties. Then I will discuss theoretical design and experimental results on optoelectronic devices. In particular I will discuss nanowire and micro-ring lasers and integration of nanowires and microrings. I will also present the results on polarization sensitive, broad bandwidth THz detectors operating at room temperature. Nanowire based energy devices such as solar cells and photoelectrochemical (PEC) water splitting will be discussed. I will discuss about Neuro-electrodes to study brain signaling to understand dementia. Future prospects of the semiconductor nanostructures will be discussed.



Professor Jagadish is a Distinguished Professor and Head of Semiconductor Optoelectronics and Nanotechnology Group in the Research School of Physics, Australian National University. Prof. Jagadish is the

Editor-in-Chief of Applied Physics Reviews, Editor of 2 book series and serves on editorial boards of 20 other journals. He has published more than 1000 research papers (750 journal papers), holds 7 US patents, co-authored a book, co-edited 15 books and edited 12 conference proceedings and 20 special issues of Journals. He is a fellow of 12 Science and Engineering Academies (US, UK, Australia, Europe, India) and 14 Professional Societies (IEEE, MRS, APS...). He received many awards including IEEE Pioneer Award in Nanotechnology, IEEE Photonics Society Engineering Achievement Award, OSA Nick Holonyak Award, IUMRS Somiya Award, UNESCO medal for his contributions to the development of nanoscience and nanotechnologies and Lyle medal from Australian Academy of Science for his contributions to Physics. He has received Australia's highest civilian honor, AC, Companion of the Order of Australia, for his contributions to physics and engineering, in particular nanotechnology. He has received 2023 Pravasi Bharatiya Samman Award, highest award given to overseas Indians by the Government of India, from the President of India. He is currently serving as the President of the Australian Academy of Science.