

Avviso di seminario

LUNEDÌ 30 GIUGNO ORE 11:30 AULA SEMINARI SBAI

Via Antonio Scarpa 16 – Palazzina RM004

Integrated Photonic Devices based on Semiconductor Heterojunctions

Professor Mukesh KUMAR, PhD



ABSTRACT

Silicon nanophotonic devices for optical communications and interconnects are presented, including a silicon nanophotonic resistive switch with an on-off extinction ratio greater than 15 dB. The interaction between plasmons and electromagnetic waves at the nanoscale enables extensive control of optical signal via electrical control. A hybrid silicon-based optical modulator is realized with Si-ITO heterojunction that enables intensity modulation with an extinction ratio greater than 20 dB via electrical tuning of optical absorption. The device is promising as a silicon photonic platform not only for optical modulation but also in other applications such as electrically tunable photonic devices, tunable dispersion compensators, and optical delay lines for optical communications and optical interconnects.

Prof. Mukesh KUMAR

Optoelectronic Nanodevice Research Laboratory
Department of Electrical Engineering and Centre for Advanced Electronics
Indian Institute of Technology (IIT) Indore - INDIA

CV

M.Tech. - Indian Institute of Technology (IIT) Kharagpur (2004); PhD - Tokyo Institute of Technology, Japan (2005-2009); Post Doctoral Research Fellow, Precision and Intelligence Laboratory, Tokyo Institute of Technology, Japan, (2009 – 2010); Assistant Professor Thapar University Patiala (2011 – 2015); Assistant Professor IIT Indore (2015 – 2017), Associate Professor IIT Indore (2017 – 2022), Full Professor IIT Indore (2022 – present)

— Associate Editor of **IEEE Photonics Journal**

— Fellow, Japanese Society for Promotion of Science (JSPS), Government of Japan

— Senior Member, OPTICA (Optical Society of America)

— Senior Member, IEEE (Institute of Electrical and Electronics Engineers)

— Life Fellow, Optical Society of India

— Life Member, Material Research Society of India (MRSI)

— Japanese Government Fellowship of Ministry of Education, Culture, Sports, Science, and Technology (MEXT) to pursue PhD, 2006

— Funding from Global-COE (Global Center of Excellence) to stay in University of California Berkeley under Photonics Integration Core Electronics (PICE) research program of Japanese Government, 2008

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Eugenio Fazio – 26543 – eugenio.fazio@uniroma1.it – 392.7940935