Activities on Mid-Infrared Optoelectronics at SIMIT

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BIOGRAPHY

Li Ai-zhen: graduated from Fudan University in 1958, and then joined the Shanghai Institute of Metallurgy, CAS (named SIMIT since 2001). She was appointed as a full professor in 1988, and was elected by the Degree Committee of the State Council as an Authorized Advisor for Ph.D. students in 1990. She was the director of SIMIT’s Department of Semiconductor Materials, and the Department of Functional Materials and Devices, the Academic Director of the State Key Laboratory of Functional Materials for Informatics. She has been engaged in research on III-V semiconductor materials and devices, established SIMIT’s molecular beam epitaxy (MBE) laboratory and initiated studies in a new frontier field on quantum structures and quantum devices by MBE for both optoelectronic and electronic devices applications in the early 1980’s, also took part in founding and establishing the State Key Laboratory of Functional Materials for Informatics. She has published 250 papers, 27 patents, 33 prizes, and 14 honors. Li was a visiting scholar and visiting professor of Carnegie Mellon University, USA (1980-1982, 1984, 1987-1988, 1993-1994), and Max-Planck Society, Paul-Drude Institute of Solid State Electronics, Germany. She has served on numerous committees for the International Conferences. She was a recipient of the Third World Academy of Sciences 2004 Prizes in Engineering Sciences. She was elected as a member of the Asia-Pacific Academy of Materials in 2003. Professor Li was elected as a foreign associate member of the National Academy of Sciences, the United States of America in 2007.

TECHNICAL ABSTRACT

Many gases exhibit their basic absorption spectra in the wavelength range between 3-10 μm, quantum cascade lasers (QCLs) operating in this range are an ideal light source for TDIALS absorption spectroscopy technology. In order to accelerate QCL applications to meet the requirements of spectroscopy application, efforts have been made to improve the stabilized performance of QCL materials and devices. The reliability and reproducibility of mid-infrared QCLs, and the quality of non-cryogenic infrared detectors have been greatly improved, making these devices ready for real-world application. In this talk we will review the activities in SIMIT on InP-based 4-10 μm QCLs, infrared InGaAs detectors, and the primary study on III-V Bismide materials for mid-infrared optoelectronic non-cryogenic lasers.

This work were supported by the NNSF of China under projects 60676026,60136010, and 60906047; State Advanced Technology Program 863 under 006AA03Z0406, State Major Fundament Study Program(973) under G20000683; and CAS KJ951-B1-706, CX-III under KGCX2-YW-121.

References:

Keywords: Mid-infrared, QCL, Detector, Bismide materials

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