

Laudatio: Professor Hidenori Mimura

Professor and director of Research Institute of Electronics, Innovative Photonics Evolution Research Center, and Nanodevices Fabrication and Evaluation Center, Shizuoka University

His previous activities include: Senior Researcher at the Nippon Steel Corporation, Senior Researcher at the Advanced Telecommunication Research Institute, Associate Professor at the Research Institute of Electrical Communication, Tohoku Univ, Professor at the Research Institute of Electronics, Shizuoka Univ.

He is the Visiting Professor, Ocean University of China, Honorary Professor of Saint Petersburg State Institute of Technology, Russia, Visiting Professor, Kaunas University of Technology, Lithuania, Adjunct Professor, University of Indonesia, Visiting Professor, Tokyo Medical and Dental University.

Prof. Mimura is one of the world most active researchers in vacuum nanoelectronics which uses micro-field emitter arrays. The most serious problems of micro-field emitter arrays are the fluctuation of emission current and spatially divergence of the emitted electron beam. Prof. Mimura solved these two serious problems of field emitters. He developed micro-field emitter arrays, monolithically fabricated with a field effect transistor in series at

1996. He completely suppressed the fluctuation of emission current by using the field effect transistor as a constant current source for micro-field emitter arrays.

Prof. Mimura also developed novel volcano-structured double-gated micro-field emitter arrays. He demonstrated the excellent focusing characteristics of the emitted electron beam without decreases of the emission current for the novel volcano-structured double-gated field emitter arrays. He developed various devices using micro-field emitter arrays such as X-ray tubes, ramps, image sensors, microwave devices. Recently, he has developed radiation tolerant vacuum image sensors and THz travelling wave tubes using field emitter arrays.

Among the most important discoveries one can mention the development of novel image sensors using amorphous - crystalline silicon heterojunctions; of porous Si light-emitting diodes with blue, green and red colors; of current self-oscillations in photoexcited type-II GaAs-AlAs superlattices; of THz detector using semi-insulating GaAs and InP; of a photon counting type X-ray detector using CdTe p-n junction; of a drawable carbon nanotubes using chloride mediated chemical vapor deposition; of a novel strain sensor using CNT sheets, and others.

Among his activities at international societies etc. one can mention

the following:

- * Editor, IEEE Electron Device Letters**
- * Advisory Editor, Microelectronic Engineering, Elsevier**
- * member of the International Steering Committee, International Vacuum Nanoelectronics Journal**
- * Chairman, Japan Society for the Promotion of Science 158th Committee on Vacuum Nanoelectronics**

Over the last 10 years, as chair and co-chair, he organized 6 international conferences in the field of vacuum nanoelectronics, displays, materials, energy and environments.

He was director of 5 important international projects aimed at:

- the development of the electron source with the high performance and low-energy dispersion,**
- Creation of nanovision science,**
- Innovative image engineering initiated by the fusion of different technology,**
- Industry-university collaboration utilizing regional resources,**
- Creation of a Research Center on Imaging Devices,**
- Formation of Innovation and Ecosystem in the Hamamatsu area.**

He published more than 230 journal papers and presented more than 80 invited talks at international conferences.

Professor Mimura has become a good friend of the Moldovan scientific community. Since 2011, practically each year he is visiting the Republic of Moldova, participating with plenary reports at our conferences, participating in TV talk-shows dedicated to scientific achievements.

He contributed a lot for a good organization of summer schools for graduate and PhD students in Moldova, where he came with a team of students from Japan.

On behalf of the members of the Academy of Sciences of Moldova, of the President of the Academy of Sciences of Moldova acad. Gheorghe Duca who cannot attend this meeting, I would like to congratulate Professor Mimura and to wish him much success in his future activities, having no doubt that he will further contribute to the development of the fruitful scientific collaboration between researchers from Japan and Republic of Moldova.