

Message from COE Leader

The Research Center for Nanodevices and Systems (RCNS) has been selected as the Center of Excellence (COE) on “Nanoelectronics for Tera-Bit Information Processing” based on the 21st COE program, in 2002. The scientific staff of RCNS and the cooperating member of the Graduate School of Advanced sciences of Matter intend to form the COE for innovative research and education on information electronics by extending their world-class research position.

Through the technical fusion of the three research fields: (1) Semiconductor devices and process, (2) Nano-device modeling and (3) Integrated circuit design and Architecture, a worldwide leading COE for information-electronics research and education has been constructed. A wide band wireless interconnection technique and 10GHz RF circuits design based on the MOS model (HiSIM), 3-dimensional system-integration using ultimately small devices have been developed as an innovative technical vision for realizing highly intelligent moving object recognition and robot control systems .

A further important goal is to bring-up a large number of young researchers, capable of doing self-defined and independent high-quality research, through the participation in leading-edge research programs of the COE. For this purpose, new department of “Semiconductor Electronics and Integration Sciences” will be established in April 2004, in the Graduate school of Advanced Sciences of Matter. In the department, the staff of RCNS will practice distinguishing education programmed by the COE, and enlarge its duties in the graduate education program of Hiroshima University.

This report has the purpose to offer information about the research activities and achievements of the COE in 2002 and 2003, to those engaged in the fields of advanced integration sciences including circuit design and system architecture, semiconductor devices and processing. We hope, the report will further enhance the mutual exchange of ideas and contribute to the future progress of the research on advanced integrated devices and systems.

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