Symposium F: Novel semiconductor architectures

Scope of the symposium

In the last years, novel classes of semiconductor structures and architectures have been established. Those structures have overcome the restriction of planar growth in many ways. Besides the use of quantum dots in devices, novel semiconductor nanostructures such as nanowires and whiskers introduced the possibility of using 3D structures with high aspect ratio which allowed the development, for instance, of semiconductor-based 1D opto-electronic systems. Such new structures have been driving fundamental physics as well as device orientated research. Another class of architectures that gathers increasing interest is those based on free-standing membranes. Inside this field, two main approaches are followed: 1) membrane transfer to a new host substrate, which allow wide integration of very distinct (and previously incompatible) material types, as well as the electronic structure manipulation and rising of new properties. 2) Self-release and rearrangement of membranes to form three-dimensional objects as tubes, wrinkled networks or free-standing cantilevers. These last structures have shown potential impact in merging inorganic and organic materials with a variety of research areas spanning from basic magnetism to the manipulation of micro-scale biological structures and specimens.

Abstracts will be solicited in (but not limited to) the following topics:

- Fabrication, characterization of devices as well as architectures based on free-standing and self-released membranes;
- Fabrication, characterization of devices as well as architectures based on the combination of semiconducting membranes with other material classes (e.g. metals, oxides and organic layers);
- Fabrication and/or characterization of devices and/or architectures based on semiconducting nanowires and quantum dots;
- Growth and characterization of nanostructures on novel substrates (e. g. nanowires or quantum dots on high indexed surfaces);
- Applications of novel semiconductor architectures in physics, chemistry, or biology (e.g. sensors, actuators etc.).

Symposium organizers

Christoph Deneke (Laboratório Nacional de Nanotecnologia (LNNano), Campinas, SP, Brazil)

Carlos César Bof Bufon (Institute for Integrative Nanosciences, IFW-Dresden, Germany)

Angelo Malachias (UFMG, Belo Horizonte, MG, Brazil)

Sukarno Olavo Ferreira (UFV, Viçosa, MG, Brazil)

Invited speakers (tentative list)

John A. Rogers (University of Illinois, USA)

Armando Rastellie (IFW Dresden, Germany)

Members of Scientific Committee

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