
HL 47: Invited Talk: Mitiko Miura-Mattausch

Time: Tuesday 15:30–16:00

Location: H2

Invited Talk

HL 47.1 Tue 15:30 H2

Compact physics-based modeling of semiconductor devices for circuit — •MITIKO MIURA-MATTAUSCH — Hiroshima University, Higashi-Hiroshima, Japan

Compact models of semiconductor devices for circuit simulation bridge the gap between basic semiconductor R&D and real industrial applications. The characteristics of semiconductor devices are described with simple yet accurate equations of the essential physical device properties. The physical correctness and accuracy of a compact model is the key for further aggressive industrial developments of product applications exploiting the unique semiconductor properties.

The development trend in compact modeling has gone in recent years towards simplifications of the drift-diffusion theory with surface-potential based approaches, following the electromagnetic theory and leading to compact semiconductor-device models with both high accuracy and high computational efficiency.

The field of compact models is an example for a merging between science and technology, clarifying the common tasks of the next application era to realize rapid technological progress for the benefit of the society. An important example is the task of more efficient energy consumption and larger energy savings, which will be addressed in the presentation.