

“Systemability” of emerging devices

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Abstract

A significant effort is made to develop new devices which might bring significant enhancement with respect to the “ultimately scaled” Si-based CMOS. However many research papers are focussing on the physical mechanism – e.g. bistable switching – without taking into consideration a realistic path for integrating such devices into a complex system.

In this talk we will first address the minimum set of requirements any of such emerging devices should fulfil in order to compete with Si-based CMOS. Many examples will be taken from the literature illustrating some of the criteria for integrability.

However building a system is more than just bringing together devices fulfilling integrability criteria. Looking from the system’s side we will discuss what other constraints should be taken into account for system integration.

We will conclude in considering disruptive architectural concepts, some of them taken from the biology field.