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Mismatch in deep-submicron and the consequences for analog designs

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Bandwidth, accuracy and power are the main parameters that connect the world of technology and sensor physics to the digital systems-on-silicon and advanced signal processing. Bandwidth is associated with drive strength, lithography node, and available current. Accuracy relates to static device properties such as device mismatch. Bandwidth and accuracy tend to pose opposing demands on technologies.
In this talk a short description of device mismatch is given, the technology trends for mismatch are examined as well as consequences for analog circuitry. As dimensions shrink down to the 22 nanometer level, the impact of these limits becomes more severe and more effort and power are needed to mitigate the problems.
Often a smart interaction with the system allows overcoming performance loss. In some systems calibration is an option, however cost and power budgets require that the designer optimally uses the available opportunities of the devices and technology.

Presenter: PELGROM, Marcel

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