



# ESEC Engineering Science Education Conference 2008.01.18

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[14:30-16:00](#)  
[Room: MC 102](#)

## 04 Electrical

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#### Moore's Law & Integrated Analog and RF circuits

Integrated electronics technology has maintained an exponential scaling for over 4 decades. This is an unprecedented engineering achievement with a transformative impact on society. It has directly contributed to changes in many economic and social aspects of daily life by providing the computing and communication devices that enable the information revolution.

The technical aspects of scaling and Moore's law will be briefly reviewed, and we will illustrate how it is requiring the field of electronics to continuously reinvent itself. We will specifically focus on the design of integrated analog and radio-frequency circuits which are the critical interfaces that connect computing devices to the physical world. The scaling of device sizes has required a substantial scaling of the supply voltage, which is projected down into the sub-1V region for nanoscale technologies.

We will illustrate how these technology changes create important challenges, but also opportunities for designing analog and RF integrated circuits and how they drive research to design interfaces that operate from ultra-low supply voltages down to 0.5V.

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