



# ISSCC 2023: Circuit Insights [[isscc.org/insights](https://isscc.org/insights)]



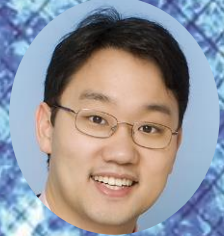
For Undergraduate and Starting Graduate Students; Open to All.

**Saturday, February 18, 2023, 7:30-12:20, PST, Free Registration is required\*.**



**7:40 – 8:40: Asad Abidi, University of California, Los Angeles, USA**

**The CMOS Latch:** The CMOS latch has two stable states and is the basis of static binary memory cells. How does it hold on to its state when disturbances are present? How is it forced into changing states? How fast does it change states? We will take a deep look into this circuit's operation to answer these questions.



**8:40 – 9:40: Jaeha Kim, Seoul National University, Korea**

**The Art of Linear Analysis for Analog Circuits:** The theory of linear systems provides a systematic framework of understanding, designing and modeling analog circuits. We just tend to forget it when we are lost in SPICE running transient simulations. Do you think analog circuits are harder than digital? After this talk, you will think differently.



**10:10 – 11:10: Rabia Yazicigil Kirby, Boston University, MA, USA**

**The Basics of Low Noise Amplifiers:** A voltage amplifier is characterized by its voltage gain, and its input and output resistances at low frequencies. It is expected that in the absence of an input voltage, i.e. for a zero input voltage, the output voltage to be zero! However, due to internal noise of the amplifier, typically generated by the random movement of electrons at room temperature, a non-zero output voltage always appears at the output. Low noise amplifiers are designed to minimize the damage caused to the signal by the inherent noise of the amplifiers.



**11:10 – 12:10: Maurits Ortmanns, University of Ulm, Germany**

**The Basics of Analog-to-Digital Converters:** Analog to Digital Converters (ADC) are integrated circuits at the interface of the analog world and the digital computers where digital signal processing is performed. This talk will introduce the operating principles of ADCs and their various architectures and circuits. The choice of architecture is not only dictated by the required ADC speed, resolution, and the energy it consumes per conversion, but also by the application it is used for such as wireless receivers, bio-signal recorders or quantum computers.

Circuit Insights will be offered both in-person and online! Registration is free but required!

In-person attendance is limited to undergraduate students; by invitation only!

Online attendance is open to all. To see program details and to register, visit [isscc.org/insights](https://isscc.org/insights) today!