

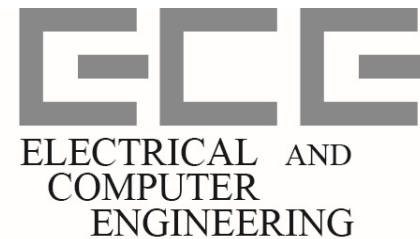
UofU Nanofab's Electrical Characterization Lab

October 13th, 2015

Ross Walker

Assistant Professor

Electrical and Computer Engineering



Assistant Professor Ross Walker (ECE)

- Research
 - Circuits and systems for sensor applications
 - Neural interfacing
 - Chemical sensing
 - Image sensing
 - Sensor interface chips and laboratory measurement systems
- Teaching
 - Analog integrated circuit design
 - ECE 5720/6720, ECE 6960-008
- Education
 - Stanford University, M.S. and Ph.D. in EE, 2013
 - University of Arizona, B.S. in EE and CS, 2005



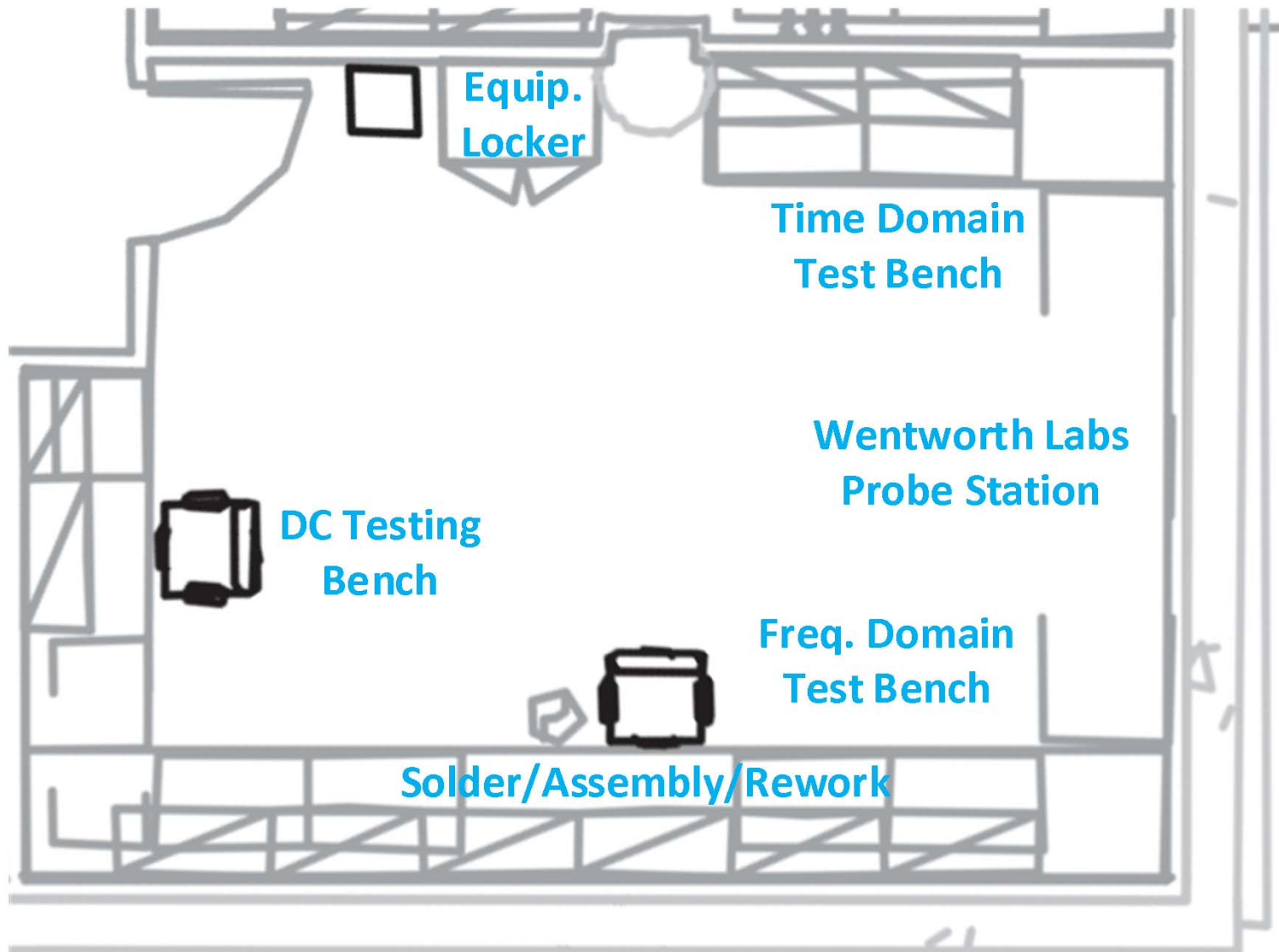
Office: SMBB 3729

Electrical Characterization Lab

- Mission
 - A facility to provide state-of-the-art equipment and resources for testing devices, sensors, and fully integrated systems
 - Focused on the UofU Nanofab community
 - Available university wide and for off-campus affiliates

- Administration
 - Asst. Prof. Ross Walker
 - Analog and mixed-signal integrated circuit design and test
 - Sensor characterization
 - Asst. Prof. Pierre-Emmanuel Gaillardon
 - Nanoscale transistor fabrication and testing
 - Digital integrated circuit design and test
 - Ian Harvey and Brian Baker

Floorplan in SMBB 2115



Existing Instrumentation

- Oscilloscope: KT-MSO9404A real-time sampling
 - 20GS/s, 4GHz analog bandwidth, 4 analog channels + 16 digital channels
- Network analyzer: KT-E5061B LF-RF
 - 5Hz-3GHz, automated impedance model extraction
- Capacitance-Voltage profiling
 - Keithley 595 quasistatic CV meter
 - Keithley 590 CV analyzer
- Power supplies
 - 6x KT-E3646A, 0-20V, 60W, 2 channels
- Arbitrary function generators
 - 1x KT-33621A 120MHz 1ch
 - 1x KT-33612A 80MHz 2ch
 - 2x KT-33522B 30MHz 2ch

Other Existing Equipment

- Wentworth Labs probe station #0-037-1112
 - Somewhat outdated: *major* upgrade is coming..
 - Signatone S-926 3-axis micropositioners, 1 μ m tungsten tips
- 2x HP4145 semiconductor parameter analyzers
- LG 55-inch flat screen TV
- Olympus stereo microscope
- Fume extraction arm
- ESD mats
- Some cabling and connectors
- Very nice cabinetry 😊

Equipment Coming Soon

- Proposed
 - Semiautomatic 200mm probe station: Micromanipulator P200L-FS8-211-R
 - Vibration isolation, thermal chuck
 - National Instruments modular PXI rack
 - SMU, data acquisition, CV measurement
 - Controller slots for real-time operation

- In procurement
 - Sony FDR-AX100 4K Ultra HD Camcorder

- Anticipated items
 - 12GHz bandwidth upgrade for the MSO9404A oscilloscope
 - AmScope boom microscope
 - HP89441A DC to 2.65GHz spectrum analyzer

Getting Involved

- Early adopters needed
 - Come on board early and we'll shape the facility to your needs
 - \$5 per hour usage fee

- Reference the ECL in your facilities and equipment statements

- Consider proposing shared equipment to be located in the ECL
 - NSF equipment grants (MRI)
 - DoD equipment grants (DURIP)
 - Increases the competitiveness of your UofU RIF applications!

Thanks for Your Attention!