

## Members in Attendance

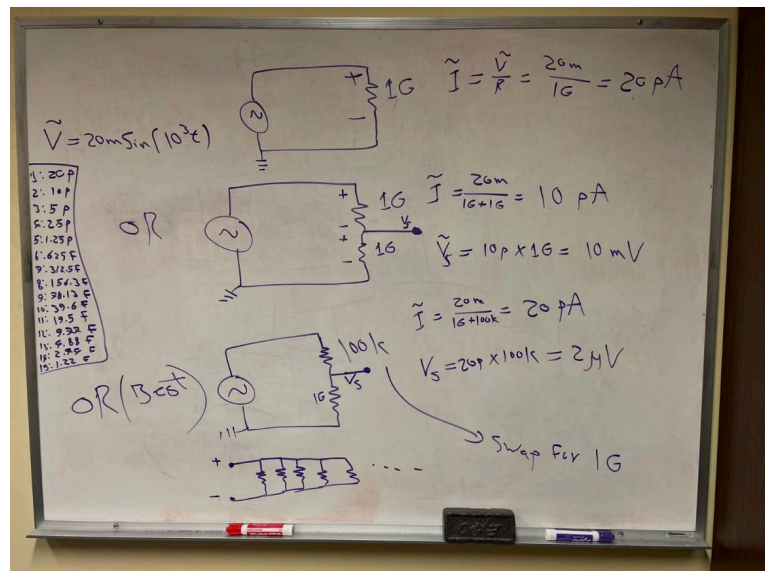
- Josh Mendez (Advisor)
- Felix Moss
- Annika Boyd
- Eisa Alsharifi

## Agenda

- Circuit Updates, Questions, Concerns
- AutoCAD Updates

## Notes

- Circuit Updates
  - Created small signal circuit
    - input square wave or sine wave
    - Output small charges for small circuit simulation
    - This output feeds into the electrometer
    - Picture:



- LTSpice
  - Tested with virtual gnd at 4.5V
  - Everything works, but now we need a new ADC
- ADC
  - Need to switch ADC
    - (At 100nano input current) Our voltage changed from (at 100nano input current) 3.28V originally to 7.78V now
    - 7.78V is too high for our current ADC
  - CREATE DECISION MATRIX TO PICK NEW ONE

- MAX1032 (14bits)
- We need 18bits
  - To get to the minimum charge of 1 fA
- Will need to use a microcontroller to program
  - Can also use microcontroller to open and close switches to control the gain of the amplifier stage
    - Or could just use a multi-turn digital potentiometer
    - Or several resistors with switches
      - Good thing about resistors with switches is that it allows for exponential changes
      - ADC
- OP AMPS
  - Also create decision matrix for this
- AutoCAD
  - License acquired, Felix has done a few tutorials
  - Will start design once circuit schematic and approximate layout is established
  - Will begin looking for example faraday cup design, example circuit enclosures, and example measurement tubes to house electrodes

#### **Deliverables for Next Week**

- Layout breadboard
- Choose ADC
  - Decided on MAX1032 in meeting
- Finalize the PCB on KiCAD
- On Wednesday go to EPL for PCB
- Send any other components needed for purchase to Josh
  - Keep them large