

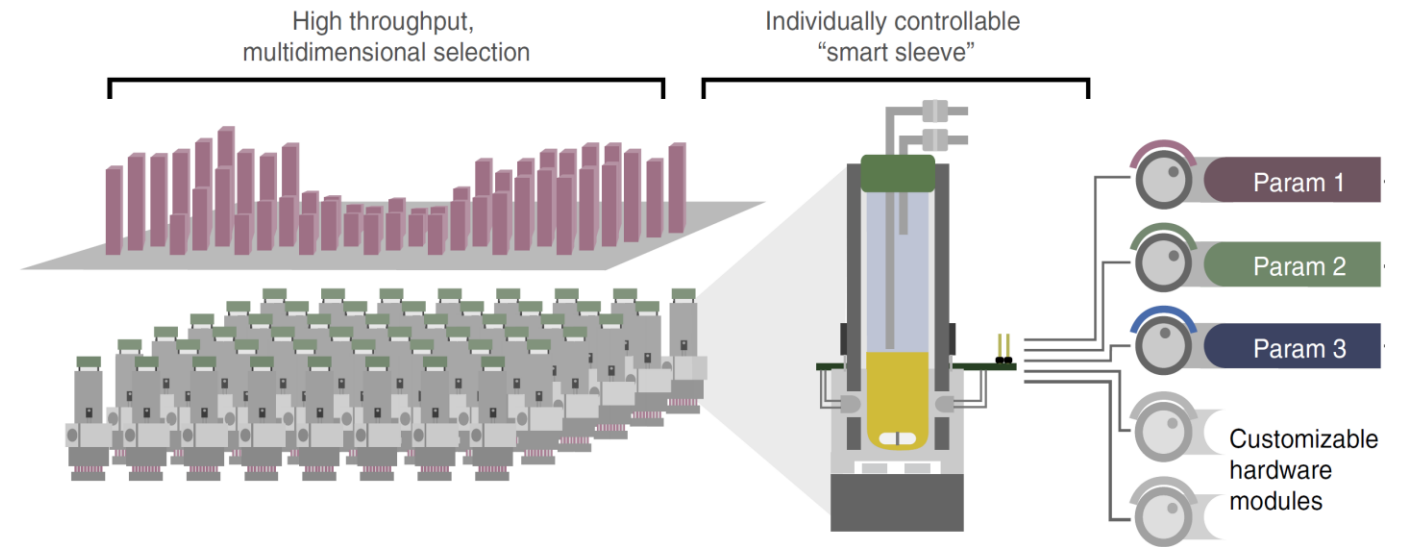
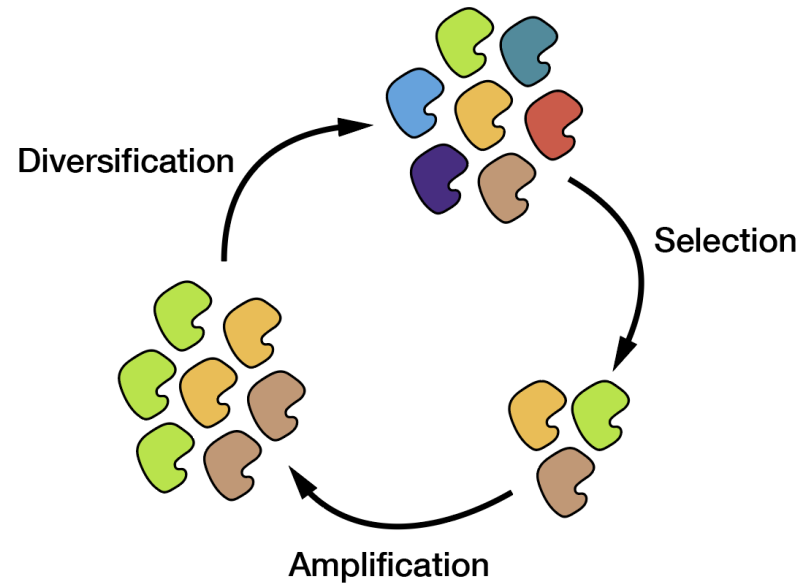
# The Luminostat:

## Detection of Weak Luminescence and Modulation of Cell Density in a Benchtop Bioreactor

Nathaniel Borders

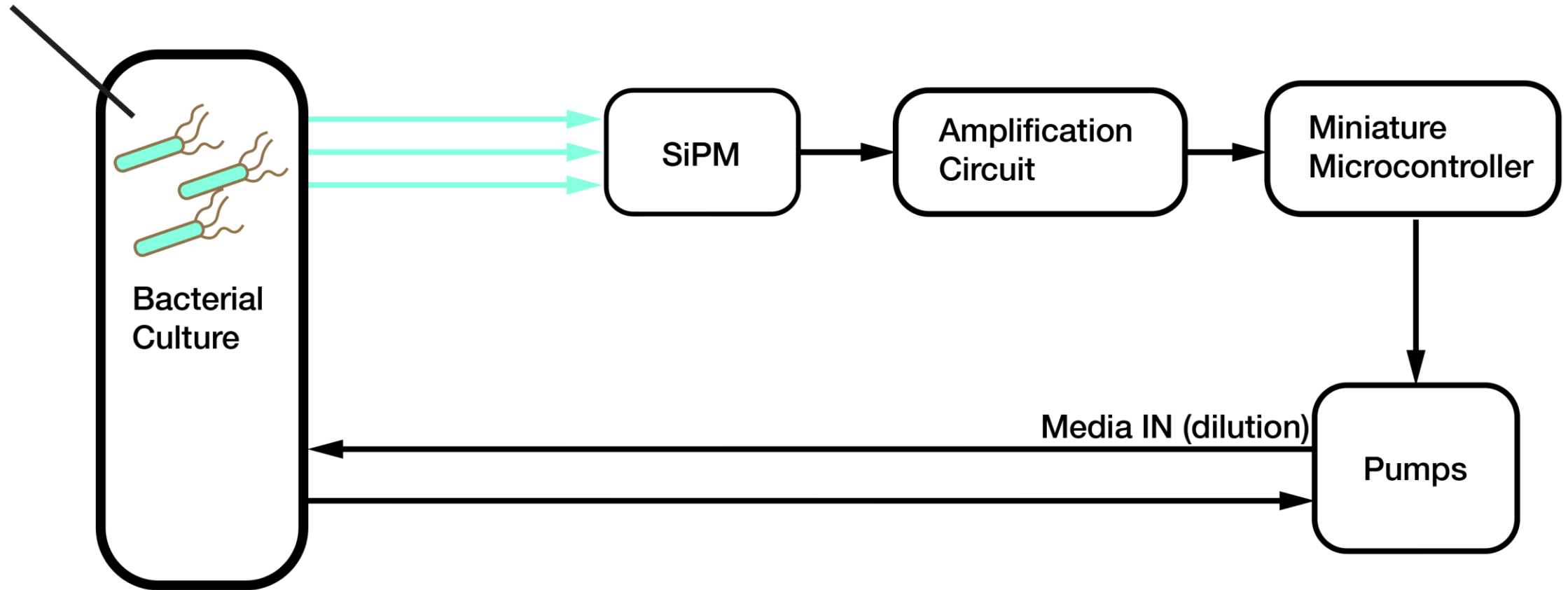
PI: Dr. Mo Khalil

# Motivation: We Control Evolution of Proteins and Organisms, but a Metric for Internal Cell State is Needed

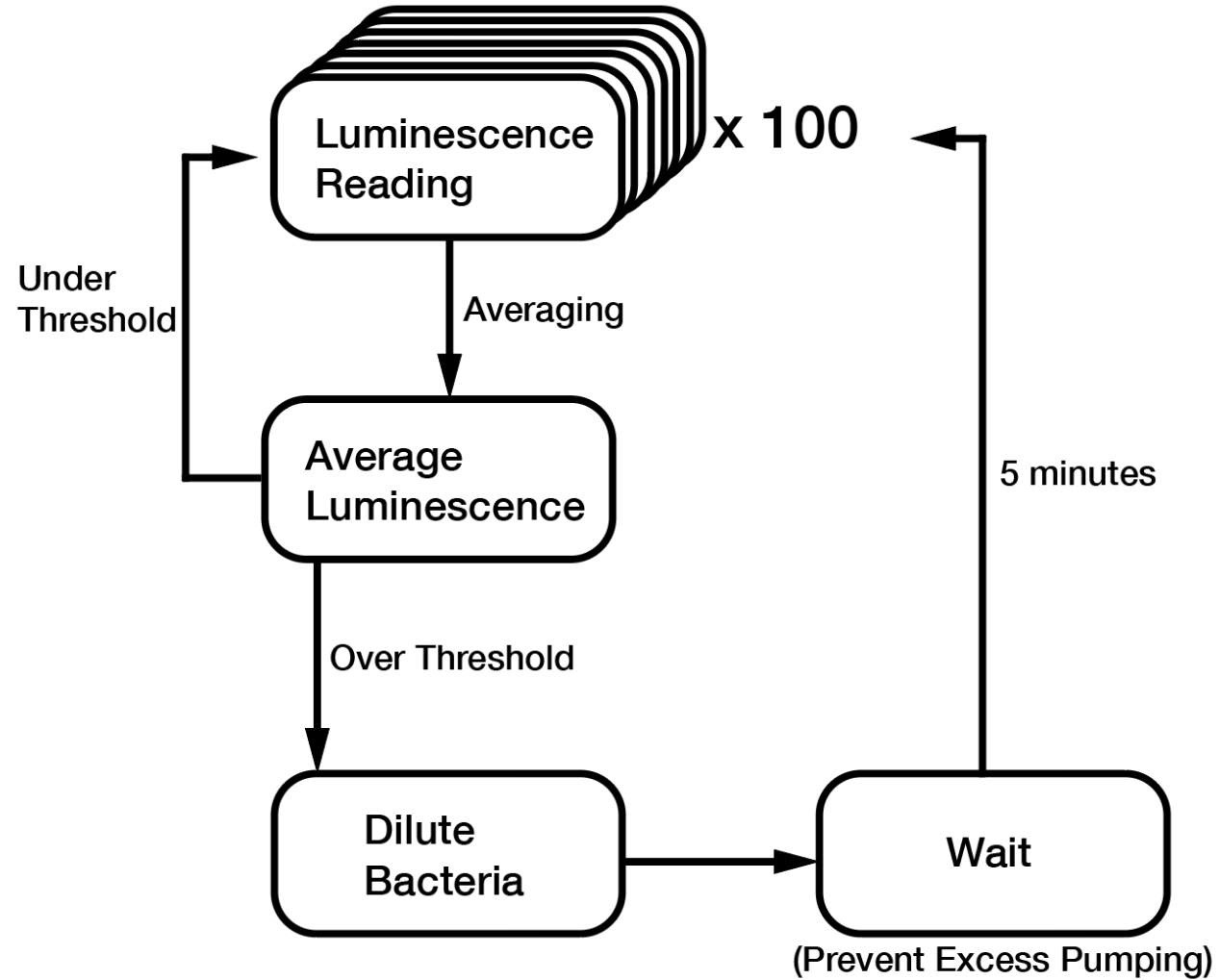


# Luminostat Block Diagram

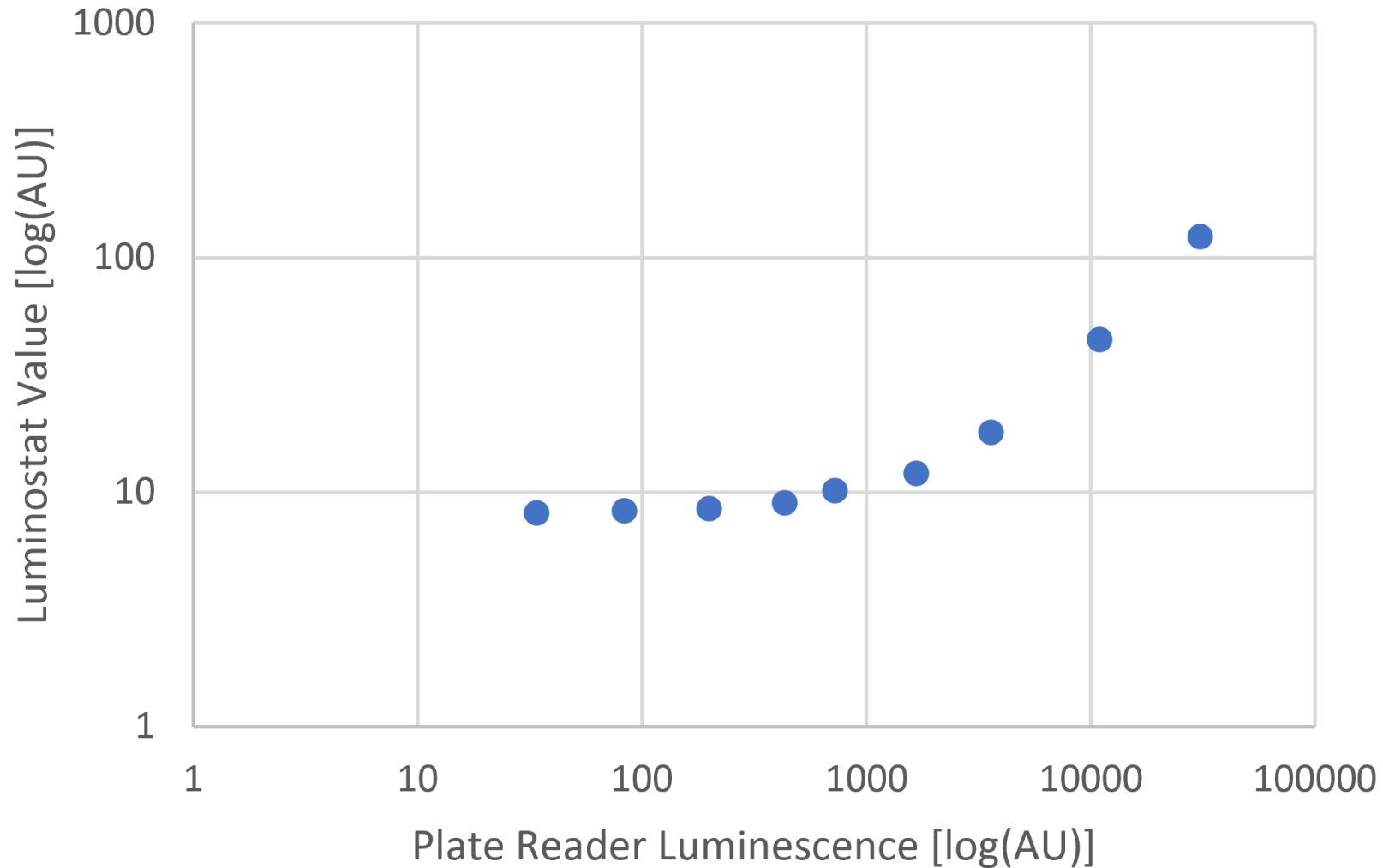
Engineered *E. Coli* Produce  
Luminescence Proteins + Substrate



# Luminostat Software Flowchart



# Luminostat Calibration to Standard Lab Luminescence Measurement Device (Plate Reader)



# CosmicWatch Electronics Schematic

