Shawn Shin

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EDUCATION

University of California, Berkeley   2017 – 2021
B.A. in Physics
Major GPA: 3.73/4.00

RESEARCH EXPERIENCE

Associate Research Scientist   July 2021 - Present
Incom, Inc.   Charlton, MA
Supervisor: Dr. Alexey Lyashenko

- *Primary role*: Fabricate, seal, and characterize the world's largest planar MCP-PMT, Large Area Picosecond Photodetector (LAPPD), in ultra-high vacuum chambers.
- Developed and deposited bialkali/multialkali photocathodes with high quantum efficiencies ($>30\%$).
- Developed and fabricated Z-stack LAPPD for LHCb electromagnetic calorimeter (ECAL) timing layer as part of DOE SBIR Phase I project.
- Key supporting researcher for DOE SBIR Phase II project: Large Area Multi-Anode MCP-PMT for High Rate Application.

Summer Research Intern   May 2021 – Jul 2021
CERN   Meyrin, Switzerland
Supervisor: Prof. Joel Fajans

- On-site summer research as part of Antihydrogen Laser Physics Apparatus (ALPHA) collaboration at CERN.
- Optimized and improved LabVIEW program that automates Argon and Krypton gas-mixing in Third Harmonic Generation chamber to produce Lyman-α laser for doppler-cooling of antihydrogen atoms.
- Designed a structural support for octupole magnet leads using Autodesk Inventor.

Undergraduate Researcher   Jan 2021 – May 2021
Mesbah Lab, UC Berkeley   Berkeley, CA
Supervisor: Prof. Ali Mesbah

- Led a group of graduate students on the circuit mapping of an Atmospheric Pressure Plasma Jet (APPJ) operating at >5 kV.
- Produced a schematic diagram and preliminary PCB layout using Autodesk EAGLE.

PUBLICATIONS

S. Shin et al., *Advances in the Large Area Picosecond Photo-Detector (LAPPD^{TM}): 8" × 8" MCP-PMT with Capacitively Coupled Readout.* In preparation.

SCIENTIFIC TALKS

Production of Large Area Picosecond Photo-Detectors – LAPPD^{TM}: 2022 Status Update
ICHEP – Bologna, Italy   July 2022

Advances in Large Area Picosecond Photodetectors – LAPPD™
APS April Meeting – New York City, NY   April 2022

LAPPD Overview: Recent Performance Results of Gen-II (Capacitively Coupled) LAPPDs
LAPPD Virtual Workshop – CFNS, Stony Brook University   March 2022

MENTORSHIP   Ethan Turett – Worcester Polytechnic Institute, Undergraduate   Summer 2022
Project: Automated Growth of Large Area Bialkali Photocathodes
- Supervising summer intern on LabVIEW project that aims to automate deposition of LAPPD photocathode
- Teaching hands-on laboratory techniques (vacuum systems, leak test, high voltage, etc.

TEACHING   **Undergraduate Group Tutor**   Spring 2021
EXPERIENCE   *PHYS 111A: Instrumentation Laboratory*   UC Berkeley
- Undergraduate student instructor for the upper division experimental course, PHYS 111A, taught by Prof. Joel Fajans and Prof. Kam-Biu Luk.
- Held weekly office hours that involved review of semiconductor circuit theory and debugging of students' circuits and LabVIEW codes.

SKILLS   *Programming Languages*
Python, Java, SQL, R

Tools
LabVIEW, LaTeX, Mathematica, HTML/CSS, SolidWorks,
Autodesk Inventor, EAGLE, KiCad, LTspice

Technology
Ultra-High Vacuum Systems, Photomultiplier Tubes, High Voltage Equipment,
Bialkali/Multialkali Antimonide Photocathode, MCP-PMTs, CNC