Jacklyn DiPietro

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Summary

Ph.D. Chemistry candidate (May 2026) specializing in thermoset coatings, laser-enabled fabrication, and surface characterization. Experienced in photothermally patterning surfaces that modify surface properties; demonstrated antifouling and fouling-release performance for naval drag-reduction applications. Hands-on experience with a suite of surface characterization techniques and a strong background in protocol standardization, collaborative interdisciplinary research, and mentorship. Seeking roles in R&D and advanced materials development.

Skills

- **Lasers**: Class IV lasers, engravers, optics, safety, and hazard prevention
- **Characterization**: scanning electron microscopy, optical microscopy, optical profilometry, contact angle goniometry, UV-Vis spectroscopy, FTIR/IR spectroscopy, Raman spectroscopy, fluorescence spectroscopy, and XRD
- **Machining and Fabrication**: Machine shop training (mill, lathe, drilling/tapping), shop safety, precision measurement (calipers/micrometers)
- **Research and Operations**: Experimental design, protocol development, troubleshooting, mentorship and training, cross-functional collaboration, scientific writing
- **Data Analysis and Visualization**: IgorPro, Adobe Illustrator, ImageJ, Excel, Blender, Python
- **Technical Writing**: Microsoft Office, LaTeX

Education

- **Ph.D. Chemistry**, The Pennsylvania State University, State College PA — *expected: May 2026*
- **B.S. Chemistry**, West Chester University, West Chester PA — *May 2022*
  Double Major in Chemistry and Biochemistry, Minor in Biology

Experience

Graduate Research Assistant, The Pennsylvania State University — *January 2023 –*
Navy Undersea Research Program Fellowship, Advisor: Benjamin Lear
Project: Photothermal patterning of polymer coatings for drag reduction and fouling-release

- Developed a novel method of generating surface features in naval coatings using **photothermal patterning**, resulting in a peer-reviewed publication[🔗]
- Developed standardized fabrication protocols to enable on-demand sample production with improved reproducibility
- Led a cross-functional study across multiple departments evaluating fouling-release performance of patterned thermoset coatings, resulting in a manuscript in preparation
- Performed surface characterization techniques: **SEM, optical profilometry, optical microscopy, UV-Vis spectroscopy, Raman spectroscopy, FTIR spectroscopy, and contact angle goniometry**
- Mentored three undergraduate researchers in experimental design, surface characterization, and scientific writing; contributing to a manuscript in preparation

Graduate Assistant, The Applied Research Lab, The Pennsylvania State University — *January 2023 –*
Advisor: Bellamarie Ludwig

- Collaborated with engineers to tailor photothermal patterning research to naval-specific applications and presented findings to Navy researchers

Graduate Teaching Assistant, The Pennsylvania State University — *August 2022 - May 2023*
Courses taught: General Chemistry I lecture, General Chemistry I and II lab.

- Taught undergraduate lab sessions, conducted office hours to offer additional support, and graded lab reports, homework and exams

Undergraduate Research Assistant, West Chester University *October 2020 - July 2022*
Advisor: Kurt Kolasinski, Project: Mechanochemical passivation of silicon powders.

- Synthesized fluorescent porous silicon nanoparticles for applications in sensors and biomedicine
- Developed novel mechanochemical methods for the surface passivation of silicon nanoparticles, resulting in a published manuscript [🔗]
- Awarded the 2021 American Chemical Society Undergraduate Award in Physical Chemistry for contribution
- Performed characterization techniques including **FTIR, fluorescence spectroscopy, UV-vis spectroscopy, XRD, and SEM.**

Leadership

Laser Safety Officer, Lear Lab (PSU) *August 2023 -*

- Trained lab members on laser operation and safety, wrote/managed/filed laser standard operating procedures, implemented laser safety protocols to minimize exposure risks, maintained laser registrations, documentation and safety procedures

President, Gamma Sigma Epsilon Chemistry Honor Society (WCU) *August 2021 - May 2022*

- Re-established local chapter at WCU, promoted the organization, managed the application process for new members, organized chapter meetings, and outreach events

President, Alchemist Club (WCU) *August 2021 - May 2022*

- Organized out-reach events for the WCU chemistry department, coordinated fundraising activities, planned member meetings, tutored physical chemistry courses

Co-Organizer, WCU Alchemist Club: Young Men and Women in Charge (YMWIC) STEM Week *April 2022*

- Co-organized a multi-day YMWIC STEM event for K–12 students in the Philadelphia and Chester County area, coordinated across departments and led chemistry demonstrations to promote STEM engagement

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Honors and Awards

- Navy Undersea Research Program Fellowship 🔗
- ARL 2025 Outstanding Graduate Student Contribution Award $100
- Second Year Graduate Award $1000 🔗
- The Nellie H. and Oscar L. Roberts Fellowship $1000🔗
- West Chester University 1871 Award🔗
- 2021 American Chemical Society Undergraduate Award in Physical Chemistry 🔗
- The Francis J. Reynolds Chemistry Scholarship $500🔗
- Joel Ressner Scholarship for Chemistry $500 🔗

Publications and Patents

- **J.A. DiPietro**, K.W. Kolasinski. Characterization of Mechanochemical Modification of Porous Silicon with Arginine. *Surfaces* 2022, 5, 143-154. [🔗]
- **J.A. DiPietro**, B. Ludwig, B. Lear. Photothermal Patterning of Polydimethylsiloxane. *RSC Applied Polymers* 2025 [🔗]
- U.S. Provisional Pat. App. No 63/620,944. One-step curing and micron scale patterning of polymers using photothermal curing and photothermal curing of multi-layer multicomponent films (Pending)