AFRL

POLYMER AND RESPONSIVE MATERIALS TEAM

Pioneering the development of soft, compliant, stimuli responsive materials and devices capable of responding to their environment in unique and useful ways which make them suitable for integration into hybrid electronics, sensing platforms, and computing applications.

What Is The Polymer & Responsive Materials and Processing Research Team (Poly(RM))?

The Polymer and Responsive Materials and Processing Research Team (Poly(RM)) investigates the enabling fundamental science and engineering behind the development of next generation stimuli responsive materials. We leverage competencies of soft matter and nanostructured materials synthesis, processing, integration, characterization and device fabrication, coupled with autonomous research and design tools to deliver relevant technologies in the areas of flexible and hybrid electonrics, wearable and embedded sensors, and materials for acoustic and mechanical manipulation and reservoir computing applications.

How Does Poly(RM) Work?

Through a combination of academic collaborations, joint research with national labs, industrial investment, and international partnerships, the Polymer and Responsive Materials Team pushes technology and provides novel capabilities to customers through peer reviewed journal publications, intellectual property development, and technology maturation programs. While the majority of Poly(RM) in-house research is focused on late-fundamental to early-applied concepts, our research is always executed with an eye towards applicaton and customer pull while leaving room for exploratory high-risk/high-reward efforts.

Why Is It Important?

The interface between future warfighters and the machines under their control requires seamless integration, communication, and data flow to effectively execute mission requirements. Similar integration is rapidly becoming a requirement for AFRL scientists and engineers tasked with developing the game changing materials and technologies that US warfighters depend upon. The mission of the Poly(RM) team is to develop novel materials that enable seamless integration at the interface between human and machine by delivering technologies (e.g., sensors, flexible hybrid electonrics, mechanical metamaterials, and materials for logic and computing) which facilitate the transfer of data between the two. Additionally, the team creates and employs autonomous research and design tools that utilize data to enable decision making and accelerate experimentation and materials design.

Our team is focused on three interdependent thrusts:
- Autonomous Research & Design Tools
- Architected & Responsive Materials
- Materials a Flexible Electronics

Contact our team by emailing:
- rx.poly-rmteam.gov@afresearchlab.com

View current solicitations at:
- defenseinnovationmarketplace.mil/af.html

Check out Summer Faculty Research Opportunities by visiting:
- http://afsffp.sysplus.com/SFFP/contact/afrl-mm-rx-wright-patterson-af-base-ohio.aspx

Visit afresearchlab.com for more Information about our work, upcoming public events, and job openings.

THE AIR FORCE RESEARCH LABORATORY

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