

# IAB Member Background

**Personal:** William R. Sharpe

Title: Lead Program Facilitator, Business Interface Office

The Business Interface Office (BIO) serves as an entry point for the Armaments Center's Academic and Industry partners, as well as our Customers. It provides a consistent interface on current and future business, ensuring AC responds to Customer's actions, inquiries, or needs in a coordinated, timely and effective manner.

<https://www.pica.army.mil/Picatinny/organizations/default.aspx>



**Company:** US Army Armaments Center

**DoD Joint Center of Excellence for Guns & Ammunition**

## VISION

CCDC Armaments Center, centered at Picatinny Arsenal, is a critical national asset that is vital to National Security and is unfettered in its ability to deliver products and provide world class facilities and services

## MISSION

Lead Research, Development and Engineering of Systems Solutions to arm those who defend the Nation against all current and future threats, at home and abroad

# IAB Member Research Interests

## Materials Data Science Research Interests

### Armaments Center Focus Areas

Lethality

Pyrotechnics

Precision Armaments

Environmental Technologies

Advanced Materials / Nanotechnologies

Novel Power & Energy Systems for Weapons  
& Munitions

Armaments Manufacturing Science

Technologies

Reliability & Predictability Technology

Modeling & Simulation of Armament Systems

Advanced Energetics

Ammo Logistics System Technologies

## Interesting things going on at your company that you want to share

The Armaments Center is a sub-command under the Army Futures Command (AFC), who's mission is to modernize the Army. The AFC focuses on six priorities: (1) Long-Range Precision Fires; (2) Next-Generation Combat Vehicle; (3) Future Vertical Lift; (4) Battlefield Networking; (5) Air & Missile Defense; (6) and Soldier Lethality. AFC's cross-functional teams (CFTs) are Futures Command's vehicle for sustainable reform of the acquisition process for the future. AFC is focused on readiness for future combat with near-peer competitors, who have updated their capabilities while the United States military has been fighting insurgents since 2001.



# IAB Member Background

## Personal:

Melbs is cofounder of Electroninks, Inc. Electroninks Incorporated was founded in 2014, with market and technology launch around 2017. We are a company with a deep knowledge base in materials science, chemistry and design focused on providing materials, inks and products for consumer electronics devices, including our own consumer products.

Our novel chemistries and formulation know-how is based on our brand of metal-complex based particle-free inks and pastes that can directly replace nanoparticle and flake-based metallic inks and films. Our philosophy is that pure metallic films are the best way to increase performance, reliability and overall cost of manufacturing and ownership. To date, our products include conductive inks based on Ag, Au, Pt, Pd, Ni, and Cu metal-complex chemistry.

Since its founding, Electroninks has been adopted into the consumer electronics supply chain and developed its own entire consumer product line, Circuit Scribe. Currently, Electroninks develops high-performance solutions for many markets including display, plating, interconnects and wearables, as well as consumer devices.

Electroninks' headquarters and primary production facility is in Austin, Texas. We have additional sales and field offices in Silicon Valley, Taipei, Kaohsiung and Seoul. In total, Electroninks employs ~40 employees worldwide, with the majority of those in Austin HQ, with high-value roles. We are proud to manufacture in the USA, and have become a key domestic supplier, and in some cases sole-supplier, of these types of conductive inks.

## Company:

### Corporate Overview

- **Company:** Operating both B2B and direct-to-consumer under one roof.



- **Our Products:** World-leader in providing **metal-complex based particle-free** conductive inks as direct replacement for conductive inks/pastes, LDS, sputtering, etching to enable economical agile, additive manufacturing.

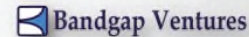
- **Employees:** ~40 in four countries (USA, Korea, China, Taiwan)

- **Financing:** Series B \$24M USD raised in 2022 from world-wide Tier 1 Partners

- **Investors and Partners:** Strategic supply chain access

- **Facility:** 30,000 SQ FT manufacturing facility in Austin, TX.

- Dedicated labs for ink production, R&D, office space, and logistics



Electroninks CONFIDENTIAL



# IAB Member Research Interests

## Materials Data Science Research Interests (why you are a part of MDS-Rely)

- EMI Shielding (materials, testing)
- Collaborations

## Interesting things going on at your company that you want to share

- Commercialized our EMI shielding products (silver conductive inks) with Merck EMD



Trusted Materials Supplier  
**Particle free Ink – collaborate with ElectronInks**

Technology & IP by **electroninks**

- **Metal Complex - Particle free Ink technology**
- World-class 30,000 sq ft facility in Austin TX, US
- The only true HVM particle-free ink, enabling new performance & application paradigms for conductive inks
- **One Board Member is from Merck**  **M VENTURES**

↕

Global Market Access by **MERCK**

- **Exclusive supplier** for particle free Ink
- Utilize Power of Merck/EMD
  - Deliver products through Merck/EMD's global supply chain
  - QA/QC by Merck/EMD
  - Technical Service @Taiwan/Kaohsiung

Bring New Technology to Market

36 2022.03.10 TechBlick\_Particle Free Ink for EMI Shielding

# IAB Member Background

Personal:

Brian Giera, PhD  
Group Leader for Analytics  
for Advanced Manufacturing



Computational Materials  
Scientist

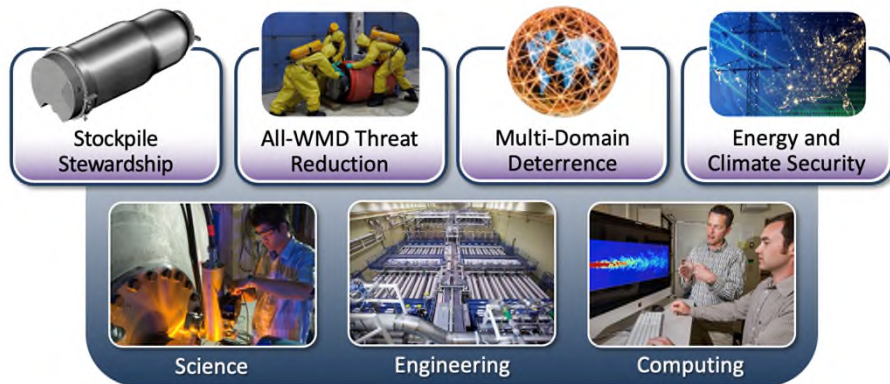
PhD, Chemical Engineering, UC Santa Barbara  
BS, Chemical Engineering, Purdue University

Company:

Lawrence Livermore National Laboratory

Premier research and development institution for science and technology applied to national security within the Department of Energy

- Established 1952
- ~7,900 employees
- ~\$2.5B annual federal budget



# IAB Member Research Interests

Materials Data Science Research Interests  
(why you are a part of MDS-Rely)

MDS Rely group are leaders in processing and executing data in the materials sciences. LLNL views the MDS-Rely as a source of collaboration, hiring pipeline, visibility of the technical front lines, and publishing opportunities.

Interesting things going on at your company  
that you want to share



# IAB Member Background



Dale M. Ashby, D.Eng.  
Vice President of Technology & Innovation  
Engineered Materials Group

- **Academics & Memberships**
  - B.S. Chemical Engineering – University of Kentucky
  - D.Eng. Systems Engineering – George Washington University
  - SAE, AIChE, INCOSE, IEEE, SPE, ASTM, ACS.....
- **Leadership Responsibilities**
  - Advanced technology development
  - Global Engineering Organization
  - New Products & Systems Development
- **Research Interests**
  - Virtual Product Developments
  - Automation/Robotics/Vision Systems
  - Durability and Reliability of materials
  - Seal Life Prediction Modeling
  - Fluorinated Materials Development



## Parker Hannifin at-a-Glance (NYSE: PH)

Engineering Customer Success in Motion & Control Markets for over 100 Years

- #1 Position in \$135B Motion & Control Industry
- ~\$16B Revenue, ~\$40B Market Capitalization
- ~11% market share; goal to reach 20%
- Global network of ~17k distribution outlets
  - Generates ~50% of Industrial Revenues
- Operations in 45 countries across six continents



HYDRAULICS   PNEUMATICS   ELECTRO-MECHANICAL   FILTRATION   FLUID & GAS HANDLING   PROCESS CONTROL   ENGINEERED MATERIALS   CLIMATE CONTROL

**Enabling Engineering Breakthroughs that Lead to a Better Tomorrow**



# IAB Member Research Interests

Materials Data Science Research Interests

**Engineered Materials Group  
Advanced Technology Platforms**

**Advanced Materials & Manufacturing Technology**

**Durability & Reliability/Life Prediction/MBSE**

**Responsive & Connected Materials System Solutions**



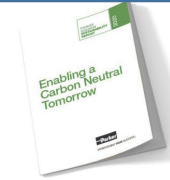
**PARKER ANNOUNCES RECOMMENDED ALL CASH  
ACQUISITION OF MEGGITT PLC**



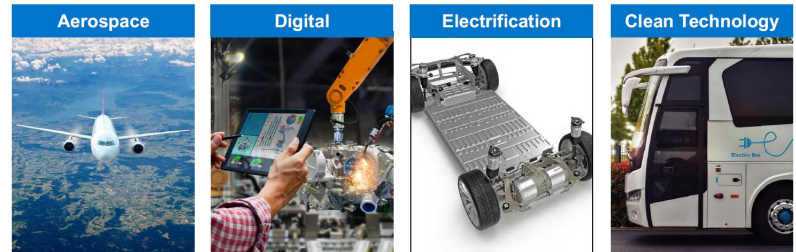
**Sustainability Targets Announced**

REDUCE EMISSIONS  
directly from Parker's operations  
**50%**  
by 2030

ACHIEVE  
**carbon neutral**  
operations by  
**2040**



**Strategic Growth Opportunities from Secular Trends**





# IAB Member Background

Personal:

Chris Cramer  
SVP & Chief Research Officer



Theoretical Chemist

A.B., Washington University  
Ph.D., University of Illinois

U.S. Army Chemical Officer (4 years)  
Professor and Administrator, University of  
Minnesota (29 years)  
SVP & CRO, Underwriters Laboratories (1 year)

Company:

Underwriters Laboratories Inc.  
Research Institutes (Standards & Engagement)

Nonprofit Safety Science Research Organization

Founded in 1894 with primary focus on testing, inspection, and certification (TIC) to mitigate fire risks. Over time, expanded into many other safety science areas.

In 2012, the TIC business became a wholly-owned, for-profit subsidiary (UL LLC). In 2022, further restructuring took place to enable substantial investment in research.

# IAB Member Research Interests

## Materials Data Science Research Interests (why you are a part of MDS-Rely)

Underwriters Laboratories Inc. does not (yet) manufacture anything. We are, however, very interested in understanding safety challenges that may be associated with emerging technologies, including those based on novel and advanced materials.

Beyond general interest, we also focus specifically on fire resilience in the built environment and at the wildland-urban interface, as well as on energy storage materials and devices.

Interesting things going on at your company that you want to share

A \$1.8B special dividend from our for-profit company in early 2022 has launched a phase of torrid growth in the non-profit research and standards/advocacy organizations.

Adding to existing research institutes focused on fire safety, human exposure (toxicology), and electrochemical safety, we launched in 2022 a Digital Intelligence Safety Research Institute, and we expect to soon launch an Office Scanning the Safety Horizon to serve as a global thought leader on emerging risks.

