

Quad Cities Manufacturing Institute - Launching New Partnerships and Opportunities

Pete Collins

Iowa State University

pcollins@iastate.edu



QUAD CITIES
Manufacturing
Institute

Pictured: (front row, left to right) Wendy Wintersteen (President, Iowa State), Tim Killeen (President, U of I system), Kristi Mindrup (Interim President, Western Illinois University); (back row, left to right) Sam Easterling (Dean, CoE, ISU), Jay Walsh (VP, Economic Development, UofI), Mark Mossman (Interim Provost, Western Illinois University)



Pictured: (bottom left to right) Mike Mason, Mayor of Davenport; Sangeetha Rayapati, Mayor of Moline; Col. David Guida, Commander JMTC



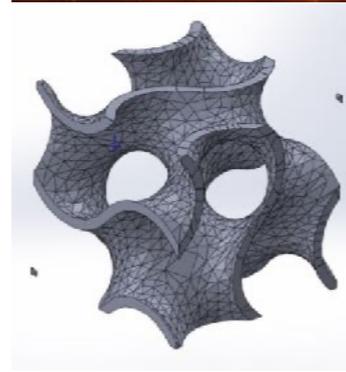
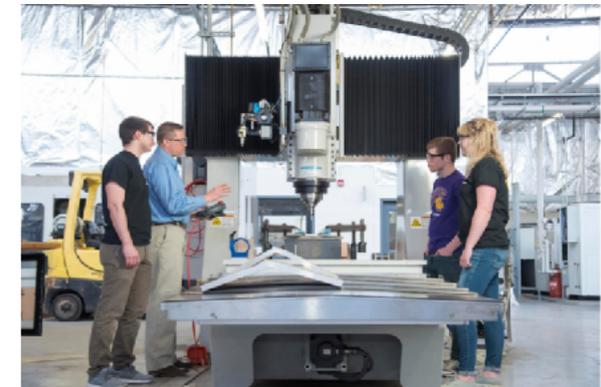
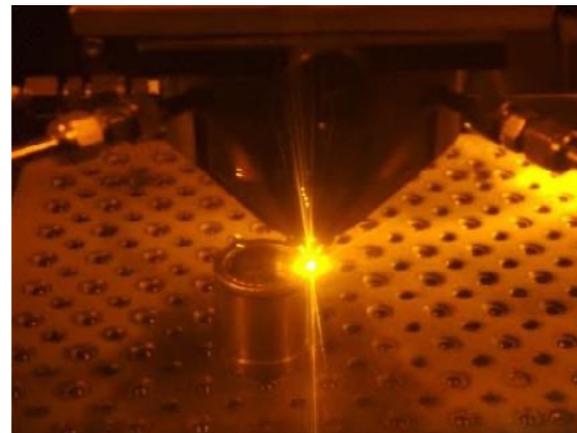
Origin Story

- Group of civic leaders in the region
- A 501 (c) (3) non-profit organization
- Formed in 2006
 - First lab space in 2009
- Governed by Board of Directors
 - Industry leaders in QC region & beyond
- Focused on Advanced Materials & Manufacturing
 - Research & Development
 - Technology Transfer
 - Pilot Production
 - Workforce training & education
- 10,000 Sq. Ft. facility located on the Rock Island Arsenal (2010-2024)

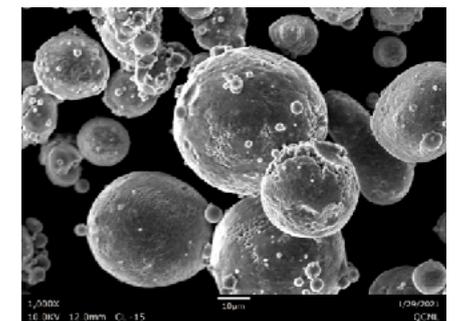


**QUAD CITY
MANUFACTURING LAB**

Strengthening American Manufacturing through Innovation



Dr. Eric J. Faierson
Director



Core Capabilities

QCML's Legacy

- **Advanced Manufacturing**

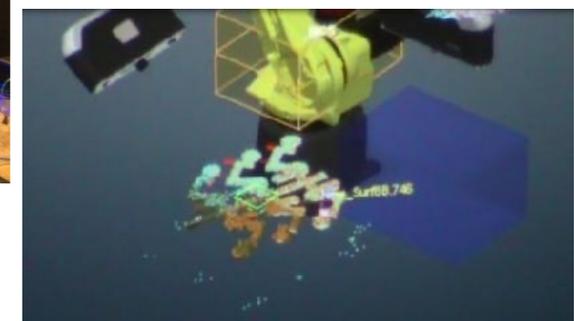
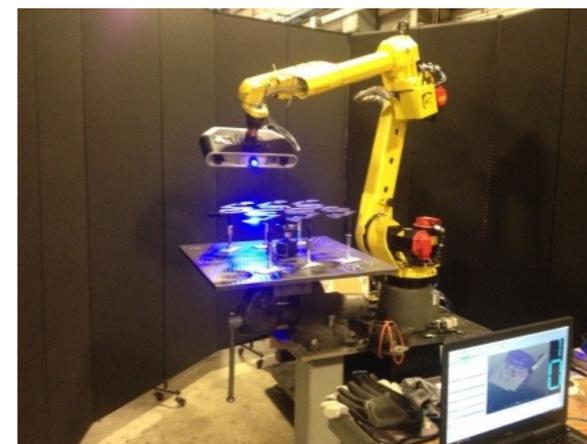
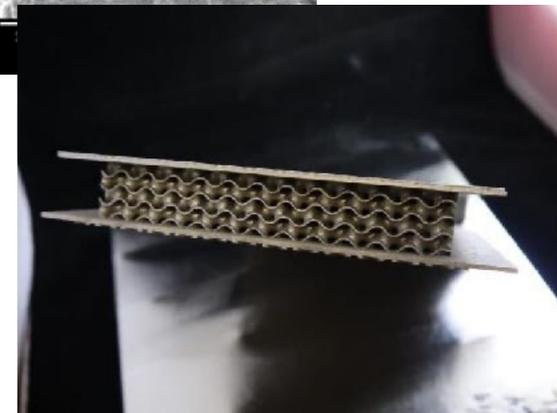
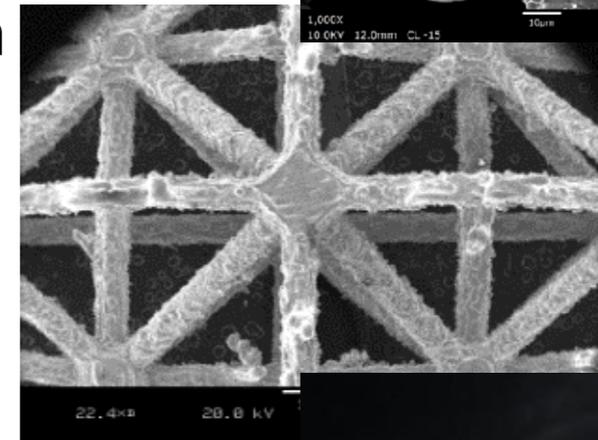
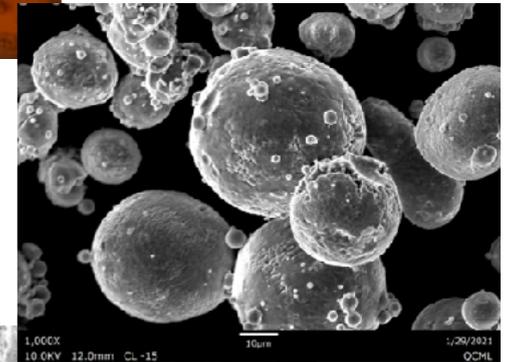
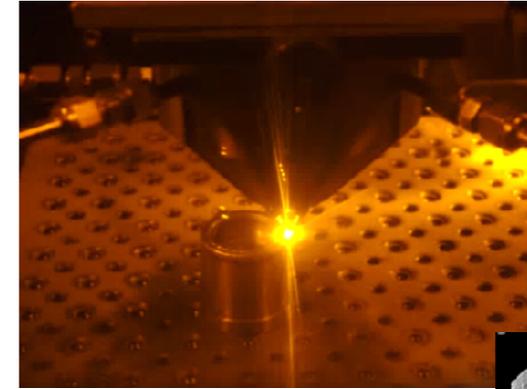
- Additive manufacturing
- Powder processing and high temperature consolidation
- Friction stir welding
- Advanced machining
- Collaborative robots

- **Advanced Materials and structures**

- Composite Ceramics
- Heavily interfaced materials

- **Advanced Analysis**

- Modeling and simulation
- Characterization
- Mechanical testing



Partnerships with R1 Universities

Flagship Universities in IL/IA

- **Both universities are Land Grant institutions**
 - Iowa State University (1862, 1st to agree to terms, designated 1864)
 - University of Illinois (1868)
 - Land Grant mission: *discover, educate, benefit society more broadly*
 - Equidistant. “Virtual combination” of the two would be equivalent to either the 2nd to 3rd largest university in US (~75,000) and 2nd largest engineering student enrollment (16,300).
- **QCML began working with both in ~2020**
 - Both institutions are known for excellence in engineering
 - Both leaders in materials and advanced manufacturing
 - Filled a few needs: *students, faculty, equipment*
- **Why the two *just make sense***
 - Strong history of connections with QC students and workforce.
 - Our wishes and visions align.



Status of QCM I today?

Technical leads: Dr. William King (UIUC) and Dr. Peter Collins (ISU)

Many other faculty will be involved at both institutions

- **Evolving physical space**

- Expected: Physical space both at RIA-JMTC and off of the island (WIU)
- Additional space through university partners
 - Main campuses + ISU space in Davenport

- **The “doers”**

- Board of Directors (3 institutions) + boots on the ground + champions
- Faculty, staff and students at engaged institutions - *subject matter experts*
- Community - manufacturers & businesses - the drivers

- **Equipment resources**

- Enhanced access to equipment

- **Workforce development**

- Exceptional local partners (WIU, EICC, BHC, SC, ...)

Core Capabilities

QCMI's capabilities

• Advanced Manufacturing

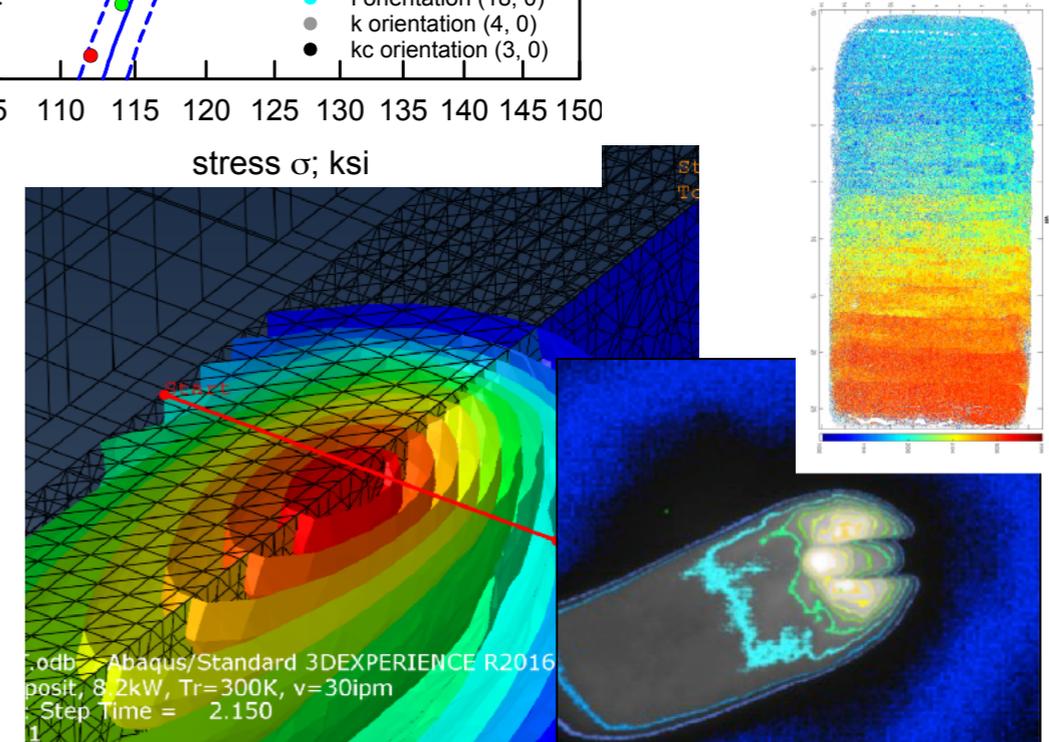
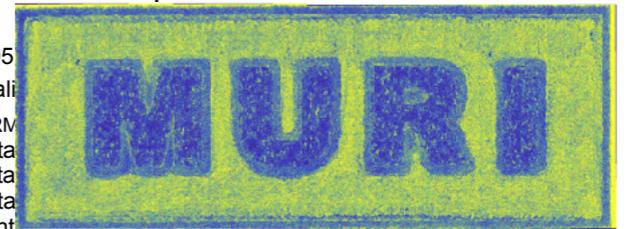
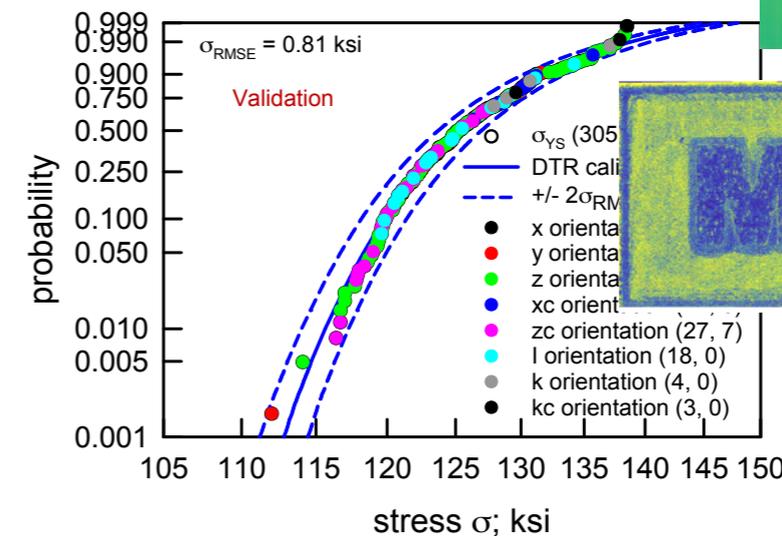
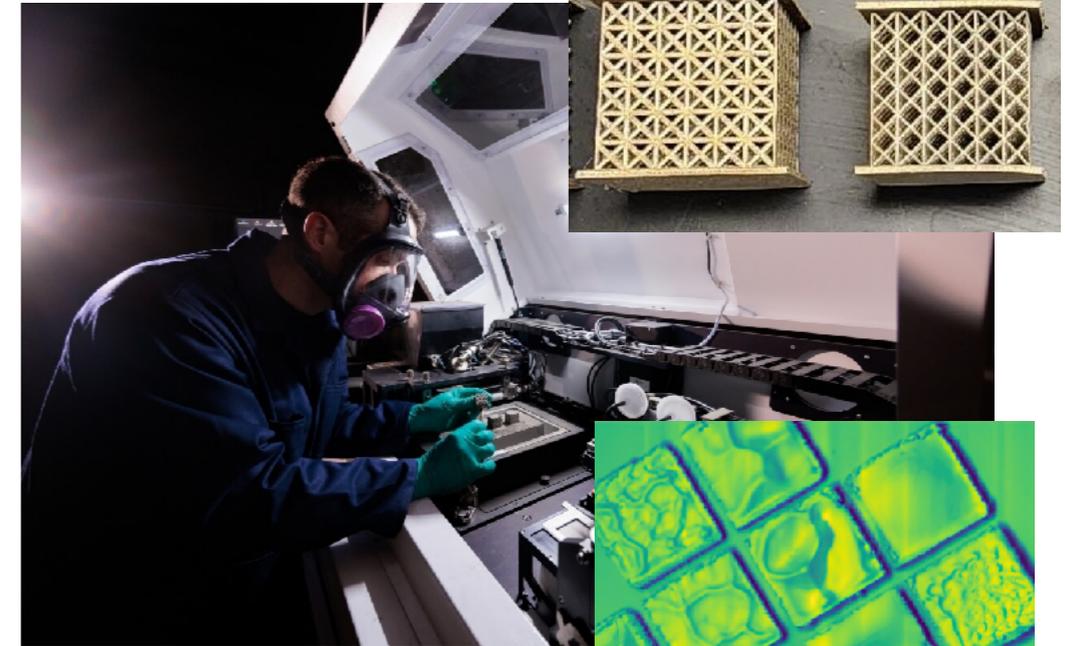
- Additive manufacturing (most / all variants)
- Hybrid manufacturing
- Powder processing and high temperature consolidation
- Advanced machining
- Collaborative robots

• Advanced Materials and structures

- Composite Ceramics
- Polymer based composites
- Heavily interfaced materials
- Gradient materials
- Control of mechanical behavior and performance

• Advanced Analysis

- Modeling and simulation
- Advanced topological imaging
- Characterization - some globally unique assets
- Mechanical testing
- NDE



Engaging in partnerships

Hearing the QC manufacturing base

- **Technical partnerships**

- What keeps you up at night?
- What are your pain points?
 - Your pain points suggest opportunities, even though they may not align with noted core strengths of QCMI.
 - Time? Investment? Opportunity cost? Lead times? Secondary processing? Digital threads? Sensors? Qualification? Virtual factory floor? Safety & training?

- **Workforce development partnerships**

- What are the needs and opportunities facing existing workforces?
- What are the needs and opportunities facing your future workforces?
- What would an ideal workforce development partnership look like? *Location, time, etc.*

Thank you!

Pete Collins

Iowa State University

pcollins@iastate.edu