

An architectural rendering of a modern building, the Kummer Institute, at dusk. The building features a prominent glass facade and a large, cantilevered roof structure. The sky is dark blue with some clouds, and the building's interior lights are visible through the glass. The foreground shows a grassy area and a body of water.

The Vision for the

Kummer Institute

Center for Advanced Manufacturing

MISSOURI
S&T

Kummer Institute Center for Advanced Manufacturing

- > A full-scale manufacturing ecosystem, where experts, innovators, businesses, entrepreneurs, and educators come together to develop and adopt the manufacturing technologies to keep Missouri a national leader in manufacturing
- > Provides applied R&D outreach for companies and integration with all S&T research centers working in collaboration with manufacturers to provide a total manufacturing solution to meet the challenges facing US manufacturing



The Protoplex

- > > 200,000 ft² total square footage
- > 60,000 ft² net high bay space
- > Occupants
 - Kummer Institute Center for Advanced Manufacturing
 - Peaslee Research Center for Steel Processing (future growth)
 - Other KI Centers - TBD

Vision

- > Economic Development
 - Grow Missouri manufacturing
 - > Increase competency to be more competitive
 - > Increase Missouri GDP
 - > Increase number of manufacturing companies in Missouri
 - Industry “Protoplex Partners” co-located within the Center for advanced R&D conducted jointly with S&T faculty
 - Engage S&T faculty to a greater degree with the community
- > Increase S&T Research Awards
 - All Centers
 - Full-scale R&D in TRL 4 – 6 range

Strategy for Achieving Vision

- > Economic Development
 - Outreach to large, mid-size, and small businesses
 - Full-scale manufacturing equipment
 - *Shared Manufacturing* model of operation for business
 - Industry & faculty select critical new equipment

Early Programming

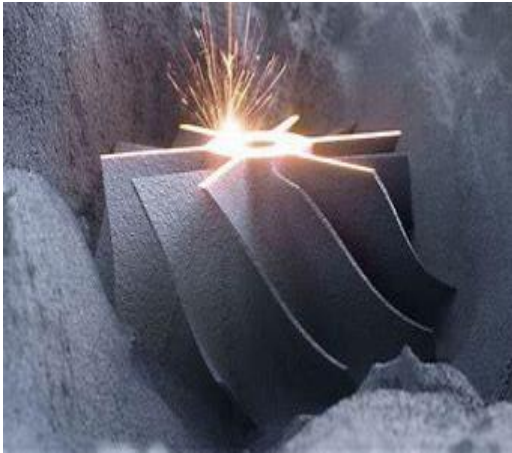
- > Mechanical & Aerospace Engineering
- > Materials Science Engineering
- > Civil Engineering
- > Computer Science
- > Engineering Management
- > Trade Schools

Mission

- Advanced Manufacturing
- Advanced Materials
- Teaming

Additive Manufacturing

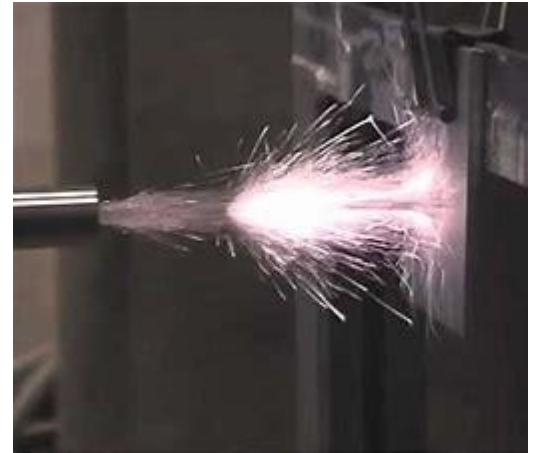
Powder Bed Fusion



Laser Wire



Cold Spray



Others

Wire Arc

Composites

Ceramics

Machining

Construction Automation

Concrete Additive Manufacturing



Intelligent Manufacturing

CyberSecurity CyberPhysical Systems Digital Twin
Systems Integration Process Control



Mission #2: Advanced Materials

Hypersonic
Materials



Carbon
Matrix
Composites



Metal
Powders



Mission #3: Teaming

- > Teaming with various stakeholders
 - > S&T Centers
 - > Leading universities
 - > Trade schools
 - > Industry
 - > Policy makers
 - > City & State Agencies
- > Teaming for ...
 - > Advanced Research and Development
 - > Workforce Development

Some Early Decisions

- Not the Director's personal research facility
- Also a magnet for other S&T research
- Large open manufacturing shop floor
- No personal labs
- No new equipment purchase unless accompanied by a sustainable funded research grant
- No bench scale equipment
- Access Control for Export Controlled research

Status

- > Architect selection underway
- > Outreach to large companies as “Protoplex Partners”
- > Outreach to SMEs for grants, equipment selection, and sharing of manufacturing equipment
- > Candidate equipment selection underway
- > Outreach to policy makers
- > Proposal writing
 - Federal
 - Industrial
- > Fulltime staff recruitment underway

To Discuss Further

richard.billo@mst.edu