AbAMI

Alberta Advanced
Manufacturing
International Hub

An International Ecosystem for Addressing Alberta Heavy Industry Manufacturing Grand Challenges

What is the AbAMI Hub?

The Alberta Advanced Manufacturing International Hub (AbAMI Hub) is an Alberta Innovates funded technology ecosystem and network of Alberta research and innovation providers, collaborating with diverse research and industry partners provincially and globally, to catalyze the advancement of manufacturing technologies in Alberta. Led by the University of Alberta and InnoTech Alberta, this industry-informed Hub will address critical issues relating to limited exposure of Alberta industry to new, cutting-edge manufacturing technologies, support for industry in the adoption of advanced manufacturing technologies, and the need for improved efficiency, productivity, revenue growth, and job creation/retention in the Province.

The unique novelty of the AbAMI Hub lies in its immediate and direct connections to international research partners and other established Hubs in global manufacturing networks in developed and emerging economies. It has assembled an international team

InnoTech Alberta welder engaged in assessing new product developments

of experts in a network to fast-track unrealized manufacturing technology solutions for industry. Through a concierge "one-stop-shop" approach for industry, the AbAMI Hub creates mutually beneficial partnerships that generates new ideas in manufacturing technologies, secures and leverages revenue, supports the training and professional development of people, and establishes pathways for sustainability and profitability of local Alberta manufacturing companies and industry end-users.

Which Industry Market Sectors does the AbAMI Hub Target?

The AbAMI Hub has assembled engineers, scientists, and industry practitioners with experience covering all major advanced manufacturing processes and materials to design, develop, and deploy new enabling technologies to address manufacturing gaps identified in targeted industry market sectors. These market sectors include:

» Conventional and renewable energy processes and systems

» Mining and materials extraction

» Construction, buildings, and infrastructure
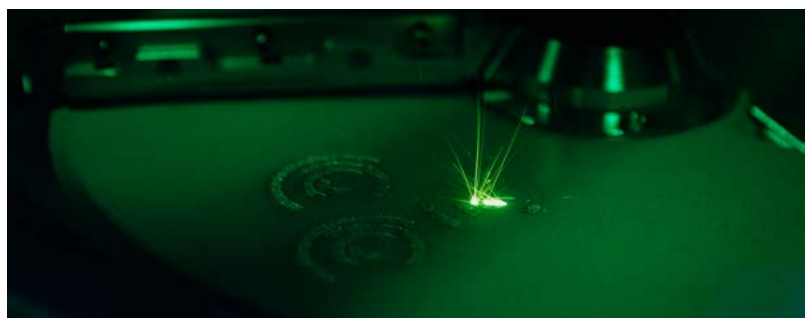
» Security, defence, and aerospace

Industry practitioners, both in Alberta and internationally, in the target market sectors have indicated the need for increase in efficiency and productivity in manufacturing processes and platforms. In response to this need, one of the focus areas of the AbAMI Hub will be to formalize integration of enabling technologies such as artificial intelligence (AI)-enabled controls, distributed sensing, health monitoring, and diagnosis for networked autonomous manufacturing/fabrication systems on an industry scale and across the targeted market sectors.

The industry market sectors have been strategically selected to align with current areas of strength in the Alberta economy, while positioning the province for emerging areas of economic and labour force growth. As Alberta looks to engage with international markets, the AbAMI Hub has identified several target countries in which robust innovation and industry activities in manufacturing, underpinned by government support and organizational capacity, will nucleate mutually beneficial partnerships between the Hub, its Alberta industry collaborators, and international industry stakeholders. These AbAMI Hub target international markets for manufacturing include:

» Australia
» Germany
» India

» Italy
» Japan
» United Kingdom

Additive manufactured metal heat exchangers

Powder bed metal printer process

Benefits to Industry and International Partners

The AbAMI Hub has relied on the knowledge and experiences of Alberta research teams, experts in manufacturing and autonomous systems, manufacturing practitioners in industry, end-users, and international experts, working across the technology readiness level (TRL) scale, to create an ecosystem that will bring tangible benefits to our partners and the Province of Alberta. By addressing the clear need for advanced manufacturing technologies that feature improved efficiency and productivity and support revenue growth and job creation/retention in Alberta, the AbAMI Hub will provide and enable:

» Access to infrastructure and manufacturing equipment that is available at the University of Alberta, other academic institutions across Alberta, InnoTech Alberta, and the Quantum and Nanotechnologies Research Centre at the National Research Council of Canada in Edmonton. These resources will be part of a concierge technology platform supporting industry in manufacturing and end-user firms to research new technologies, develop and test prototypes, trial new and existing equipment and technologies, and train staff for profit-generating projects.

» Direct engagement with Alberta and international experts in metallurgy, materials science, manufacturing, mechanical engineering, and autonomous systems for predictive design, prototyping, testing, and validation of products and/or processes.

» Partnerships with international experts for research, higher TRL innovation, and collaborations to fast-track technology development and help diversify

PhD student, Hadis Nezhad, testing autonomous manufacturing equipment

Who Do I Contact To Learn More?

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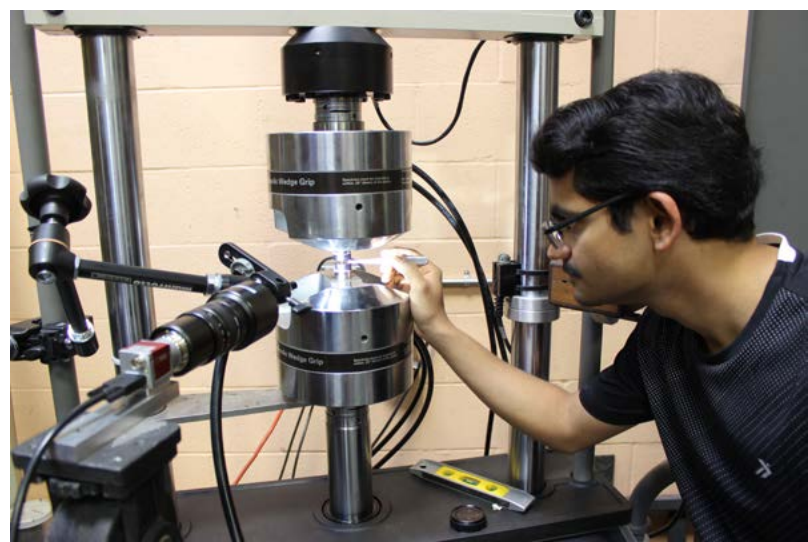9211 – 116th Street NW
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AbAMI
Alberta Advanced
Manufacturing
International Hub

An Ecosystem for Addressing Grand Challenges in Materials and Manufacturing

ALBERTA INNOVATES

InnoTech ALBERTA
A SUBSIDIARY OF ALBERTA INNOVATES

UNIVERSITY OF ALBERTA

University of Sheffield

National Research Council Canada   Conseil national de recherches Canada

AbAMI

AbAMI Hub Video

AI, Robotics, Automation

Smart and Sustainable Manufacturing Systems Laboratory – Fabricating Futures

Networked Optimization, Diagnosis, and Estimation (NODE) Lab

Industry-driven Research

Advanced Heat Transfer and Surface Technologies Lab

Alberta Next-Generation Additive Manufacturing (ANGAM) Lab

Veinot Research Group

Center for Defence: Advanced Materials (CDAM)

Dr. Leijun Li's Research Group in Welding and Metallurgy

Corrosion and Electrochemistry in Advanced Energy Systems (CEAES) Lab

Technology Deployment

InnoTech Alberta

Edmonton Global

CSIRO, Australia

Calgary Economic Development

Royce Institute, UK

Workforce Development

InnoTech Alberta

NODE Lab

MEE Cluster

ASM

Building Trades of Alberta

ELITE Program

TRIMAY®

CNC INDUSTRIES LTD.

Demir

APOLLO Machine & Welding Ltd

Additive Metal Manufacturing
Seeing Is Believing

National Research Council Canada   Conseil national de recherches Canada

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