CoE – Advanced Materials and Manufacturing

Steering Advisory Board

Meeting #1

September 6th, 2018

3:00 – 5:00 pm

UWM – College of Engineering & Applied Science
Rm # 715, EMS building
3200 N. Cramer St., Milwaukee WI 53201

(parking instructions available on the last page)

Last updated and distributed on 8/28/2018

Agenda

1. Welcome – Brett Peters/Nidal Abu-Zahra (UWM) 3:00 - 3:10 pm
2. Introductions of board members 3:10 - 3:15 pm
3. Opening remarks – Danielle Jones (WEDC) 3:15 - 3:25 pm
4. Overview of SAB goals – Nidal Abu-Zahra 3:25 – 3:30 pm
5. Discussion on CoE/AMM
    i. Vision, Mission, and Scope 3:30 – 3:50 pm
    ii. Objectives and Approach 3:50 – 4:10 pm
    iii. Stakeholders and Value Propositions 4:10 – 4:20 pm
    iv. Membership and Benefits 4:20 – 4:40 pm
    v. Intellectual Properties 4:40 – 5:00 pm
6. Open discussion and adjournment

AMM Steering Advisory Board Members

Vicki J. Martin
President
Milwaukee Area Technical College

Buckley Brinkman
Executive Director/CEO
WI Center for Manufacturing & Productivity

John Schiessl
VP of Core Engineering
Generac Power Systems

Brian Witt
Senior Manager - Engineering Centers of Excellence
Ariens Company

Marv Klowak
Global VP – R&D
Briggs & Stratton Corp.

Robert Heideman
Senior VP - Chief Technology Officer
A.O. Smith Corporation

Scott Wollenberg
VP R&D and CTO
Modine Manufacturing Co.

Fred Begale
VP Engineering
Badger Meter

Joseph Hamann
Director, Advanced Engineering
Rexnord Corporation

Mohammad Al-Omari
Manager-Advanced Materials and Process Development
Kohler Company

Paul Voyles
Director
UW-Materials Research Science and Engineering Center

Michael Miller
Director of Product Development Engineering
HellermannTyton US

Sheku Kamara
Dean of Applied Research
Milwaukee School of Engineering

Dane Morgan
Professor of Engineering
UW-Materials Science and Engineering

Scott Jansen
Executive VP and COO
Employ Milwaukee

John Borg
Professor and Chair
Marquette University

Brian Thompson
President
UWM Research Foundation

Steven Russek
Chief Engineering Scientist
Astronautics Corp Of America

[1] Vision, Mission, and Scope

Q.: Are these relevant, significant, comprehensive, and realistic?

Vision

To be the go-to-organization for companies and entrepreneurs in Wisconsin to understand, validate, share, and exploit advanced materials and their processing technologies.

Scope

- Lightweight Materials
- Composite Materials
- High-performance Structural Materials
- Materials for Additive Manufacturing
- Functional and "Smart" Materials
- Bio-derived Materials
- Biomaterials

Mission

(1) build a strong **community** of resourceful individuals and organizations working together on advanced materials innovation and sustainable scalability;

(2) develop the core **research and development** competencies that lead to new materials and processing technologies;

(3) foster a culture of **collaboration and knowledge sharing** between industry and research institutions geared toward economic development and accelerated implementation;

(4) prepare students (our next-generation workforce) to enter the job market with excellent cross-disciplinary education, research skills and hands-on product/process development experience.

[2] Objectives and Approach

Q.: Are these relevant, significant, comprehensive, and realistic?

Objectives:

The center will lead all areas of the advanced materials development cycle; identifying needs and opportunities, creating knowledge and transforming innovations into sustainable and profitable technologies by establishing effective mechanisms to:

1. Generate and **disseminate knowledge** pertaining to the opportunities, challenges and best practices of using advanced materials among key Wisconsin industries.

2. Create and maintain a **network of experts** actively working on the discovery and validation of advanced materials and processes relevant to Wisconsin businesses and industry.

3. Promote, facilitate and incentivize multidisciplinary **collaboration** among stakeholders

4. Seek and **leverage resources** (financial, knowledge, people, technology) available among stakeholders to achieve the greatest desired impact on target industries.

5. Conduct cost- and time-efficient **testing** of new ideas, **validation** of innovative materials, and proving of technologies in controlled trials.

6. Create and maintain reciprocal communication channels for **knowledge sharing** and **technology transfers** among all stakeholders.

7. Serve as a catalyst for **job creation** in the advanced manufacturing sector.

8. Monitor the evolving **workforce trades and skills** needed by Wisconsin businesses to exploit advanced materials and processes, and assist stakeholders in designing the needed education and training curricula.

9. Gather and **communicate industry needs** and challenges in adopting advanced materials and processes to Wisconsin's academic and research institutions, workforce development organizations and policymakers.

Strategy & Approach

[3] Stakeholders and Value Propositions

KEY PLAYERS

- WI- Faculty, researchers, and Graduate students
- WI- Industry scientists and collaborators

CUSTOMERS

- WI- Manufacturing companies, OEMs, and their supply chain
- Startup companies, entrepreneurs, and venture capitalists

KEY PARTNERS

- WI- Academic institutions
- WI- Community colleges and vocational schools
- Professional organizations (ASM, ASME, SPE, ASCE, ETC.)
- National/International research centers and laboratories
- WI- Outreach and economic development offices

Value Propositions

Q.: Are these relevant, significant, comprehensive, and realistic?

Companies

- Leveraged financial support for R&D
- Access to IPs in-the-making
- Access to a platform of knowledge sharing among peers
- Access to a platform of effective technology transfer
- Access to a large network of resources (experts, instruments, data, IPs)
- Access to students with relevant skills
- Validation of emerging materials and processing methods

Entrepreneurs and Investors

- Access to a network of institutions and research labs working on future materials and technologies
- Access to technology licensing and implementation resources
- Networking with key market players and policy makers

Technical Colleges

- Developing curriculum with advanced student learning and skills
- Access to a network of academic and industry experts/resources
- Recognition and reputation among the state employers and job recruiters

Research & Academic Institutions

- A platform and mechanisms for multidisciplinary collaborative work
- Opportunities for large group funding proposals (federal and industry)
- Higher productivity and efficient use of resources (faculty, space, instruments)
- Improve students experience and market value
- Higher recognition and reputation (i.e., ranking)
- Connection with WI manufacturing industry and key players

Faculty and Graduate Students

- Research- ideas, funding, and venues for research ideas' validation
- Industry and academic collaborators
- Access to a network of resources
- Recognition in the scientific community
- Career advancement and financial gain

Industry Scientists and Collaborators

- Research ideas and venues for research ideas' validation
- Access to a network of faculty experts and graduate students
- Access to a network of equipment and lab resources
- Continuous learning and skills development

[4] Membership and Benefits

	Tier 1 $X	Tier 2 $Y	Tier 3 $Z
Assistance with identifying regional/national resources for specific company R&D needs	✓	✓	✓
Assistance with identifying and connecting with experts/collaborators on specific company needs	✓	✓	✓
Assistance with identifying/recruiting students with relevant skills for company needs	✓	✓	✓
Participation in exclusive networking and recruiting events for CoE members and affiliates	✓	✓	✓
Participation in CoE technical workshops, seminars, conferences and symposia	✓	✓+$	✓+$$
Access to non-proprietary data/information generated by CoE funded precompetitive projects for company-specific contractual projects	✓	✓+$	✓+$$
Access to shared space for collaborative group research and scaling up projects	✓	✓+$	✓+$$
Assistance with developing/customizing on-site training courses and workshops	✓	✓+$	✓+$$
Free access to CoE/AMM facilities and equipment	✓	✓	
Discounts on the use of instruments and equipment available at partnering institutions	✓	✓	
Participation in large group state and federal funding proposals submitted by the CoE	✓	✓	
Participation in exclusive CoE technical meetings and presentations of funded CoE projects	✓	✓	
Voting seat on the CoE/AMM steering advisory board	✓		
Voting on precompetitive research projects funded by the CoE/Consortium	✓		
Voting on sharing information and licensing technologies with non CoE members	✓		
Non-exclusive IP licensing, at no cost, and exclusive IP licensing at additional cost	✓		

Questions:

1. Membership benefits per tier!!
2. Membership costs per tier: X, Y, Z!!
3. Additional criteria for membership costs (e.g., company size, contribution, etc.)

Future Funding and Sustainability

- Annual membership fees for the consortium company members;
- Intellectual property licensing and royalties;
- Contractual research and service work (e.g., testing and characterization) with CoE;
- Rental of space (e.g., incubators) for early startups and entrepreneurs;
- Fees from professional events, conferences, technical seminars, and workshops;
- Federal agencies including NSF, DoE, DoD (Army & Navy), and others;
- Funds from developing and teaching *on-line/on-site* courses geared towards customer needs;

[5] Intellectual Properties

All patents derived from inventions conceived or first actually reduced to practice in the course of research conducted by the UNIVERSITY shall belong to UNIVERSITY. UNIVERSITY, pursuant to chapter 18 of title 35 of the United States Code, commonly called the Bayh-Dole Act, will have ownership of all patents developed from this work, subject to "march-in" rights as set forth in this Act. As a full member, COMPANY is entitled to a non-exclusive royalty-free license to those inventions conceived or reduced to practice while COMPANY is a full member of the CENTER. UNIVERSITY agrees that all such CENTER sponsors are entitled to a nonexclusive royalty-free license. COMPANY shall have the right to sublicense its subsidiaries and affiliates. COMPANIES that wish to exercise rights to a royalty-free license agree to pay for the costs of patent application. If only one COMPANY seeks a license, then that COMPANY may obtain an exclusive fee-bearing license through one of its agents.

Continued……

Intellectual Properties…..*continued*

All full members of AMM will be provided the opportunity to enter into the licensing arrangement. A requirement for obtaining the nonexclusive, royalty-free license is for the company to support the costs of obtaining and supporting the patent.

If only one company decides to pursue licensing, it may enter into an exclusive fee-bearing licensing agreement negotiated with the appropriate university as spelled out in the membership agreement, and other member companies and any non-member companies are then excluded from the licensing option. This exclusivity would likely mean the payment of patent costs as well as a royalty fee. Alternatively, the company could enter into a nonexclusive, royalty-free license with payment of the patenting costs.

If more than one company decides to pursue licensing, they will share in the costs of obtaining and maintaining the patent.

If an originally non-participating Full member company later wishes to enter into the nonexclusive, royalty-free license at a later time, they may do so by paying a pro-rata share of the patent filing and maintenance costs.

If a non-member company wishes to enter into a non-exclusive licensing agreement, the university may, at its discretion, pay the pro-rata share of the patent filing and maintenance costs and then enter into the licensing arrangement, retaining any royalty.

If no companies decide to pursue licensing, the university is free to obtain a patent and seek fee-bearing license agreements with any company (member or non-member) at its discretion.

There will be additional costs for each additional country in which it is decided to file and maintain patent protection. Participating companies will decide on the countries in which they wish a patent to be filed. The cost incurred to file and maintain the patent for each additional country will be shared among the participating companies selecting patent protection within that country.

Discussion points for the next meeting (October 4th @ MATC)

- Any unfinished business and action items from September 6th meeting
- AMM Workshop (October 18th)
  - Presentations: Key points
  - Breakout session: key questions
  - Survey: Key Questions
  - Invitations
- CoE/AMM site location
- Financial model
- Technology roadmap
- Organizational structure
- Proposal process and timeline
- Other items requested by SAB

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