

MEMORANDUM OF UNDERSTANDING
Manufacturing and Materials Joining Innovation Center (Ma²JIC)
The Ohio State University (Lead)
Colorado School of Mines
Lehigh University
University of Tennessee, Knoxville
University of Waterloo

This Memorandum of Understanding (MOU) is effective this 17th day of September 2018 between The Ohio State University, Colorado School of Mines, Lehigh University, University of Tennessee, Knoxville, and University of Waterloo. This Memorandum of Understanding is based upon the requirements set out in the National Science Foundation Industry University Cooperative Research Program (IUCRC) under solicitation 17-516 and any proceeding solicitation the lead site (Ohio State University) shall move to.

WHEREAS, The Ohio State University, the lead site, (hereinafter referred to as "OSU"), Colorado School of Mines (hereinafter referred to as "CSM"), Lehigh University (hereinafter referred to as "LU"), University of Tennessee, Knoxville (hereinafter referred to as "UTK"), and University of Waterloo (hereinafter referred to as "UW") intend to join together in a cooperative effort to support the Manufacturing and Materials Joining Innovation Center (Ma²JIC) (hereinafter referred to as "CENTER"). All of the universities mentioned above shall be hereinafter referred to collectively as "INSTITUTIONS", or "SITES".

WHEREAS, the activities of the CENTER are funded by: 1) The National Science Foundation (hereinafter referred to as "NSF"); 2) Industrial Members (hereinafter referred to as "MEMBERS"); and, 3) other funds that may be received from time to time.

WHEREAS, INSTITUTIONS desire to formalize certain agreements between them with respect to the subject matter contained herein.

NOW THEREFORE, for and in consideration of the mutual promises and covenants herein contained and intending to be legally bound, INSTITUTIONS hereto agree as follows:

1. Center Governance

- a. The CENTER will be governed by a common set of Bylaws (a copy of which is attached as Attachment A). The Bylaws may be modified upon the agreement of the Industrial Advisory Board (hereinafter referred to as "IAB"). The CENTER operates under the terms and conditions of an IUCRC as outlined by the National Science Foundation.
- b. The CENTER will share a common Industrial Advisory Board as outlined in the bylaws, which guides development of the CENTER trajectory with input from IAB members and Principal Investigators. IAB recommends policy and project funding for the CENTER.
- c. The CENTER Director, who resides at OSU, the lead Institution, provides overall management of the CENTER. The CENTER Manager is charged with coordinating CENTER information, planning the IAB Meetings, developing CENTER marketing materials, managing shared fiscal responsibilities coordinating NSF needs at the CENTER level, coordinating with Offices of Research from each SITE and assisting with membership recruitment. The CENTER Manager, who resides at OSU, provides overall support to the CENTER Director. Both the CENTER Director and the CENTER Manager support the Sites and the IAB Chair.

- d. Each Institution shall have a SITE Director. The SITE Directors coordinate the CENTER funded research at their respective sites and interact with the IAB to identify key technology areas and establish long-range goals and short-range planning procedures necessary for an overall research program. Each SITE Director shall provide to the CENTER Manager regular reports of research activities and programmatic and fiscal matters associated with CENTER. SITES will each certify memberships and other sources of funding annually and submit to the IAB chair, CENTER Director and CENTER Manager.
- e. Each SITE will be responsible for negotiating Membership Agreements for MEMBERS at their SITE using the common Membership Agreement, as well as collecting and administering membership dues from MEMBERS at their SITE.
- f. CENTER will hold biannual meetings, as prescribed by the National Science Foundation.
 - i. One meeting per year will be held by the lead site. The lead site will bear the cost of the meeting.
 - ii. One meeting per year will rotate evenly between non-lead U.S. SITES. The hosting SITE will bear the cost of the meeting. If a host SITE cannot bear the full cost of the meeting and agreed to by the other site directors in advance, each US SITE agrees to equally share the cost of the meeting.

2. Center Funding

- a. The SITES will propose research projects and the projects' budgets to the IAB. The IAB shall vote on the approval of research projects proposed by SITES. Upon receiving IAB approval, a SITE may begin its proposed research project.
- b. SITES will be responsible for financing IAB approved projects hosted at their SITE.
- c. SITES are responsible for attracting and retaining their own members and collecting membership fees from the MEMBERS.
- d. If a MEMBER would like to support multiple projects at different SITES, the MEMBER will have a membership agreement at each SITE and each SITE is responsible for the collection of membership fees.
- e. Each U.S. SITE will be responsible for paying a fraction of the CENTER Manager's (see 1c) appointment (salary and benefits) as administrative fee; an amount equal to fifty percent of the appointment, divided by the number of U.S. based SITES.
 - i. The lead site will provide salary projections for three years to all sites annually
 - ii. Salary and benefits changes should not exceed 3% growth annually without 1 year warning ahead of time
 - iii. Any salary changes above and beyond that will be the responsibility of the site employing the center manager

3. Ownership and Administration of Intellectual Property

- a. References in this MOU to the INSTITUTION owning the Inventions and patents issuing thereon or any rights in it may refer to the INSTITUTION, its investigators, students, post-docs or any of their

employees owning such Inventions and patents issuing thereon or any rights in it, depending on the INSTITUTION's intellectual property policy.

- b. The parties agree the INSTITUTIONS will specifically retain the perpetual right to use the results of the projects performed by its investigators for continued research and educational purposes without charge, fee, or royalties, notwithstanding any other agreement.
- c. Inventions and patents issuing thereon, made during the course of a research project funded by the CENTER by a single investigator or multiple investigators from one INSTITUTION will be owned solely by the investigators' home INSTITUTION.
- d. The ownership of inventions and patents issuing thereon, made during the course of a research project funded by the CENTER by multiple investigators from different INSTITUTIONS will be jointly owned by the home INSTITUTIONS of the respective investigators.
- e. Inventions made with support from the National Science Foundation shall be subject to the provisions of 37 CFR, Part 401.
- f. Investigators who make an invention, discovery or improvement, or develop software during the course of a project funded by the CENTER shall disclose promptly such invention to the SITE Director and the CENTER Manager and/or the appropriate policy committee of the INSTITUTION with which the Investigator is affiliated. In the case of an invention owned solely by one INSTITUTION, that INSTITUTION, and/or inventor(s) in the case INSTITUTION has an inventor-owned intellectual property policy, shall be responsible for managing the invention. In the case of an invention disclosure concerning a jointly owned invention is filed, the participating Institutions will decide on a case-by-case basis and in a separate written agreement which Institution, and/or inventor(s) in the case INSTITUTION has an inventor-owned intellectual property policy, will manage the technology, including patent filing and costs related thereto, marketing and negotiation of all relevant agreements. Notwithstanding the foregoing, in the case of an invention disclosure concerning a jointly owned invention, the participating parties hereby grant each other any and all rights required to license the jointly-developed project results in any jurisdiction worldwide for any purpose without restriction and without accounting to the other parties.
- g. Taking into account any preexisting obligations, all intellectual property, including invention disclosures, filed and assigned patents, as well as copyrights, (excluding copyrights in academic works of authorship such as publications, theses, dissertations) will be marketed to industry. Industrial MEMBERS of the CENTER will be connected about licensing such intellectual property as governed by the rules of the National Science Foundation Industry/University Cooperative Research Centers.
- h. Funds for filing patents, if any, will come from a combination of university resources, industrial funds, or other funds, as available, in accordance with INSTITUTION policy.
- i. Separate written agreements will be developed, on a case-by-case basis, to cover CENTER-funded project inventions conceived jointly between INSTITUTION and inventors from other (non-CENTER) universities, federal agencies, industry or other organizations.
- j. The CENTER Manager and SITE Directors will encourage investigators and students to file invention disclosures. Appropriate record-keeping practices and information on the maintenance of proper legal

records of ideas and inventions will be promoted. The patenting and marketing progress of invention disclosures generated by all participating CENTER personnel will be closely monitored by the appropriate INSTITUTION's affiliated Technology Transfer Offices, and/or inventor(s) in the case INSTITUTION has an inventor-owned intellectual property policy, in conjunction with the SITE Directors to ensure timely knowledge transfer.

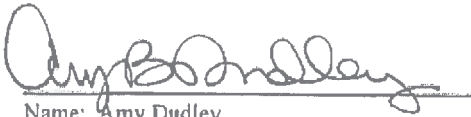
- k. Publication of results of the research conducted under the auspices of the CENTER is encouraged and will not be delayed other than as reasonably necessary to timely file a patent application.

4. Termination

- a. An INSTITUTION may terminate this MOU by providing the CENTER with written notice of its intent to no longer participate as a SITE at least thirty (30) days in advance. The INSTITUTION will send a written notice to the CENTER Director and the CENTER Manager.
- b. The CENTER may terminate this MOU by providing the INSTITUTION with written notice of its intent to no longer support the INSTITUTION as a SITE at least thirty (30) days in advance. The CENTER will send a written notice to the SITE Director and the INSTITUTION's sponsored research office.

IN WITNESS WHEREOF, the parties hereto have caused this MOU to be duly executed by their duly authorized officers as of the day and year set forth next to each signature.

The Ohio State University



Name: Amy Dudley

Title: Director of ESPS

Date: 8/30/18

Colorado School of Mines



Name: **Johanna Eagan**

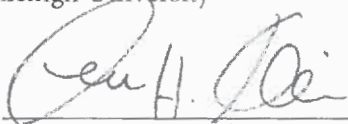
Title:

Date: Director

Office of Research Administration

9/12/18

Lehigh University



Name: Andrew H Kline
Title: Contract and Grant Specialist
Date: 09/04/2018

University of Tennessee, Knoxville

DocuSigned by:
Jean M. Mercer

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Name: Jean M. Mercer
Title: Assistant Vice Chancellor for Research
Date: 9/17/2018

University of Waterloo



Name: Michael G. Szarka
Title: Director
Date: Research Partnerships
University of Waterloo