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Unsolicited Proposal Submission Windows:
September 1-15, 2017
January 10-24, 2018

Workshop Format and Tentative Agenda

The workshop will have three types of activities:

1. Invited talks (each is 20 minutes long including Q&As). These talks will be given by experts who will present inspiring examples of 3D printing in various applications (including, but not limited to, architecture, structures, construction, materials and design); by individuals from federal agencies who will talk about their agency's perspectives on 3D printing for civil infrastructure design and construction; and by international guests who will present activities related to additive manufacturing (3D printing) for civil infrastructure design and construction) in their countries.
2. Panel discussions (each is 30 minutes long). A group of 3 to 4 speakers will serve as panelists for these panel discussions.
3. [Idea presentations](#) (each is 7 minutes long). These short presentations will be given by participants who have ideas about potential 3D printing's applications in civil infrastructure design and construction.

Tentative Agenda

Updated: July 5, 2017

Day 1

7:30-8:00 **Continental Breakfast**

8:00-8:20 **Introduction and opening remarks**

Moderator: *Stephanie Paal*

Welcome by workshop organizing committee

Welcome by *Deborah Goodings* (NSF CMMI Division Director)

8:20-9:40 **Invited talks (4)**

Moderator: *Brennan Grignon* (DoD)

R. Platt Boyd IV, Branch Technology

Cellular Fabrication – 3D Printing at Architectural Scale

Kristy Pottol, US Army Medical Materiel Development Activity

Frontiers of Additive Manufacturing in Military Medicine

Rob Gorham, America Makes

America Makes – A Consortium Approach to AM for Infrastructure Design and Construction

Kaleb Steinhauer, Genesis Dimensions

Bringing Additive Manufacturing to the Construction Site

9:40-10:10 **Panel discussion**

Moderator: *Brennan Grignon* (DoD)

Panelists are the four invited speakers in the previous session

10:10-10:40 **Break**

(Coffee and light refreshments will be provided)

10:40-12:00 **Invited talks (4)**

Moderator: *John Vickers* (NASA)

Berok Khoshnevis, University of South California

Large-scale 3D Printing: Past, Present and Future Projection

Zofia Rybkowski (with *Negar Kalantar*), Texas A&M University

Performative 3D Printed Building Skins: Towards an Adaptable Built Environment

Pablo D. Zavattieri, Purdue University

Material Architected Inspired by Nature: Harnessing the Role of Interfaces and Uncovering Hidden Possibilities

Brian K. Post, Oak Ridge National Laboratory

Breaking Barriers with BAAM: Large Scale Additive Manufacturing Applications in Infrastructure

12:00- Panel discussion

12:30 Moderator: *John Vickers* (NASA)

Panelists are the three invited speakers in the previous session

12:30- Lunch

13:30 (provided by the workshop)

13:30- Invited talks (4)

14:50 Moderator: *Chiara (Clarissa) Ferraris* (NIST)

Neri Oxman (with *Julian Leland*), MIT

Towards A Material Ecology

TAM (Theo) Salet, Eindhoven University of Technology, Netherlands

3D Concrete Printing – A Journey with Destination Unknown

Philip F. Yuan, Tongji University, China

Robotic Additive Manufacture in Architectural Industry

Florence Sanchez, Vanderbilt University

3D Printing: A New Promising Avenue for Concrete and the Construction Industry

14:50- Panel discussion

15:20 Moderator: *Chiara (Clarissa) Ferraris* (NIST)

Panelists are the four invited speakers in the previous session

15:20- Break

15:50 (Coffee and light refreshments will be provided)

15:50- Idea presentations (10)

17:00 Moderator: *Ralph Resnick* (NCDMM)

Hunain Alkhateb, The University of Mississippi

Mars Habitation: Mission, Vision, and Current State of Art

Christopher Carroll, Saint Louis University

3D Printed Reinforcing Cages for Concrete Columns

Patricia Clayton, University of Texas at Austin

Additive Manufacturing in the Construction Industry: Getting Beyond the Hype

Qingli Dai, Michigan Technological University

Plastic Fiber Concrete Design and 3D Printing Techniques

Mo Ehsani, QuakeWrap, Inc.

Onsite-Manufactured Continuous Pipe

Johan Potgieter, Massey University, New Zealand

Solving the Good and the Bad of Small Scale Resolution for Large Format Printing

Wil Srubar III, University of Colorado Boulder

Structural Plastics: Polymer Additive Manufacturing in Civil Engineering Research and Education

Ross Stevens, Victoria University of Wellington, New Zealand

Recreating Earthquake Prone Historic Buildings with 3D Printing

Yunsheng Zhang, Southeast University, China

A Controllable Concrete Ink Material for 3D Printing and Its Application

Hongyu Zhou, University of Alabama – Huntsville

Self-adaptive Building Facade Enabled via 3D Printed Metamaterials: Harnessing Geometry Complexity for Performance

17:00 **Adjourn**

Day 2

7:30-8:00 **Continental Breakfast**

8:10-9:30 **Invited talks (4)**

Moderator: *Frank W. Gayle (AMNPO)*

Sarat Singamneni, Auckland University of Technology, New Zealand

Ceramic 3D Printing for Additive Solutions in Civil Construction

Simon Fraser, Victoria University of Wellington, New Zealand

Scaling Up: Novel Design Inspired Applications of 3D Printing

Didier Lootens, Sika Technology AG – Central Research, Switzerland

Industrialization of the Construction: Local Producing with 3D Printing

Timothy Wangler, ETH Zürich, Institute for Building Materials, Switzerland

Materials Challenges in Digital Fabrication with Concrete

9:30- **Panel discussions**

10:00 Moderator: *Frank W. Gayle (AMNPO)*

Panelists are the four invited speakers in the previous session

10:00- **Break**

10:30 (Coffee and light refreshments will be provided)

10:30- **Invited talks (4)**

11:50 Moderator: *John A. Barton (Texas A&M)*

Deborah Goodings, NSF

NSF Perspectives on Additive Manufacturing for Civil Infrastructure Design and Construction

Frank W. Gayle, Advanced Manufacturing National Program Office (AMNPO)

Manufacturing USA – the National Network for Manufacturing Innovation

Scott Z. Jones, National Institute of Standards and Technology (NIST)

NIST Perspectives on Additive Manufacturing for Civil Infrastructure Design and Construction

Michael R. Fiske, NASA/Marshall Space Flight Center
**On the Development of an Additive Construction Infrastructure for
Terrestrial and Planetary Surface Applications**

11:50- **Panel discussion**

12:20 Moderator: *John A. Barton* (Texas A&M)

Panelists are the four invited speakers in the previous session

12:20- **Wrap-up**

12:30 NSF program director *Joy Pauschke*

12:30 **Adjourn**

(Box lunch will be provided by the workshop)