

AM-Bench: A proposed benchmarking series for additive manufacturing

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Proposal:

Put together a dedicated conference series on “Simulations for Additive Manufacturing” with ***computational benchmarks*** as a key component.

modeled after the NUMISHEET benchmark

Robert Wagner, J. K. Lee, Eiji Nakamachi, Norman Wang (1988)

Additive Manufacturing Benchmark Test Series (AM-Bench)

Description:

A continuing series of highly controlled benchmark tests for additive manufacturing, in conjunction with a conference series

Goals:

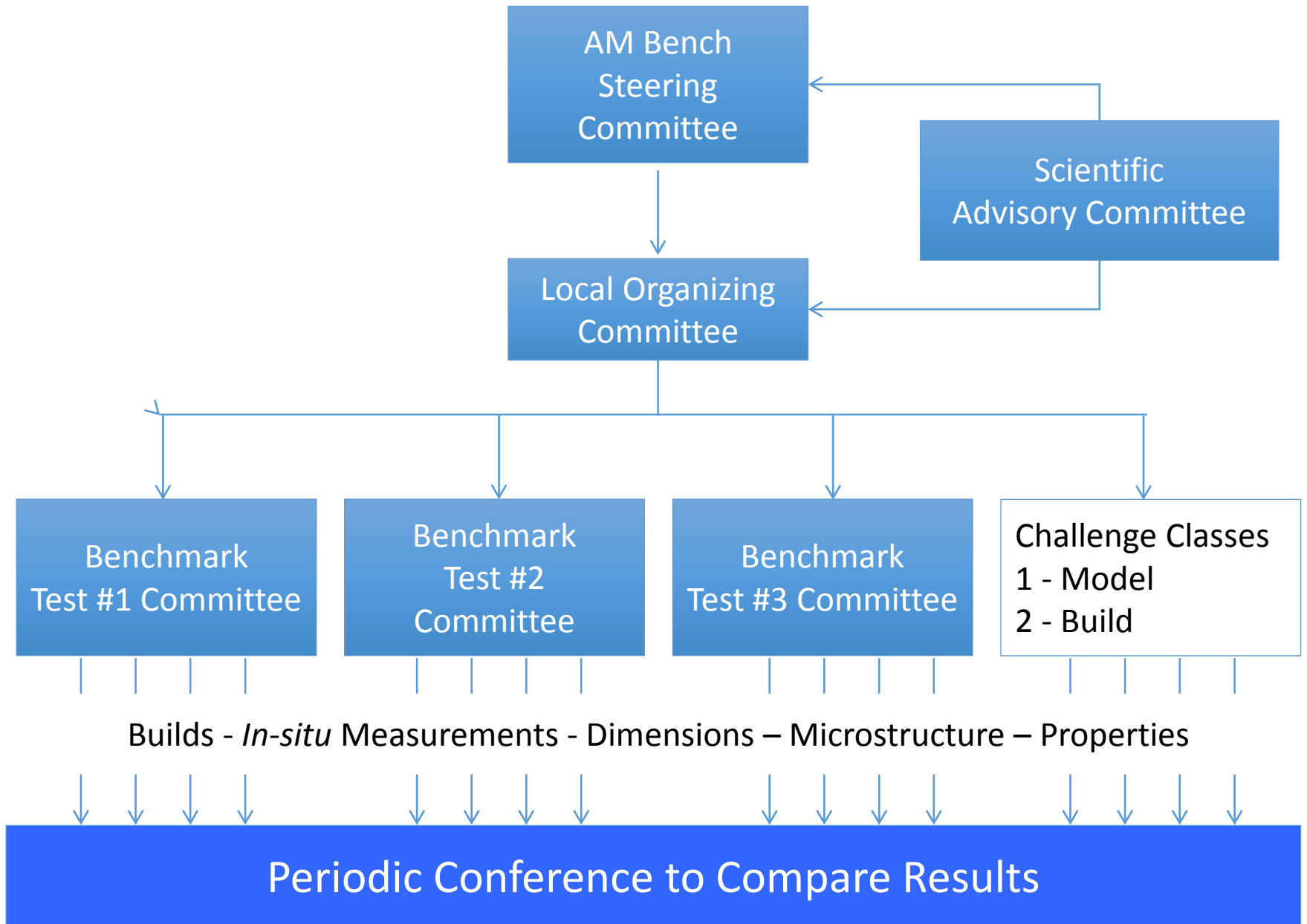
1. To allow modelers to test their simulations against rigorous, highly controlled additive manufacturing benchmark test data
2. To encourage additive manufacturing practitioners to develop novel mitigation strategies for challenging build scenarios

Scope:

Metals and polymers using multiple build methods will be supported.

First Conference Venue:

National Institute of Standards and Technology
Gaithersburg, MD



AM-Bench Exploratory Committee

Role of Committee:

- Define benchmark tests
- Define stakeholders
- Determine scope and organization structure

40 participating organizations, 59 members

AFRL, ARL, NRL

NASA (Ames, Glenn, Goddard, Marshall, JPL)

ANL, LANL, LLNL, NIST, ORNL, Sandia

National Academies

EWI, Quad City Manuf. Lab.

3DSIM, ESI Group (France), GE Global Research, Honeywell, IHI Corporation (Japan), Lockheed Martin, MadeInSpace, Pratt & Whitney, QuesTek, UTRC

Clemson, CMU, Imperial College (UK), Luleå Univ. Tech. (Sweden), Northwestern, MS State, NIU, Purdue, TX A&M, U. AL, UConn, U. TX El Paso, U. Wisc.

AM-Bench Status and Plans

1. 4th (final) draft of foundational documents are being written with input from Exploratory Committee
2. AM-Bench International Steering Committee will be assembled
3. Current Exploratory Committee will become the Scientific Advisory Committee
4. Local Organizing Committee for first conference (at NIST) will be assembled
5. First set of benchmark tests and volunteers (from multiple organizations) will be selected
6. Timeline will be determined and announced
7. Work on first set of benchmark tests will commence