

Instrumented Laser Joining Workshop

NIST, Boulder, Colorado USA

July 11-12, 2017

Measurements & Instrumentation, Modeling, Applications, NIST tours

TOPICS

Traceable non-contact temperature measurement for advanced manufacturing

Klaus Anhalt (Physikalisch-Technische Bundesanstalt)

Understanding light-matter interaction dynamics at the onset of keyhole mode laser materials processing Manyalibo Matthews (Lawrence Livermore National Laboratory)

Inline Coherent Imaging: Direct 3D Imaging of Laser Processes

Paul Webster (Laser Depth Dynamics)

Understanding Focus Behavior for High-Power Laser Welding Stan Ream (EWI)

Physics-based Model for Laser Additive Manufacturing - Needs for Material Property Data and in-situ Experimental Measurement Wei Zhang (The Ohio State University)

Laser Welding and Process Monitoring of Medical Devices Neil Ball (Directed Light, Inc.)

The Leap from Trial and Error to Accurate Predictive Modeling in Industrial Laser Welding & Bonding of Metals David Plourde (Preco, Inc.)

Integration of Heat Transfer and Fluid Flow with Keyhole Modeling to Understand Laser Welding Processes Todd A. Palmer (Pennsylvania State University)

The Exascale Additive Manufacturing Project (ExaAM): Building on Decades of Experience and Research in Welding John A. Turner (Oak Ridge National Laboratory)

Multi-scale Modeling of Process Dynamics and Microstructure Development in Laser Keyhole Welding Wenda Tan (University of Utah)

Laser Power Measurement – the State of the Art Josh Hadler (NIST)

Residual stress measurements by neutron scattering Daniel Hussey (NIST)

Additive Manufacturing Metrology Testbed (AMMT) Support for AM Process Reference Data Brandon Lane (NIST)

The Instrumented Weld – Establishing a Benchmark for Laser Processing Thermal Simulations Brian Simonds (NIST)

... other speakers and topics to be announced

Meeting Logistics:

Registration:

Participants should register (no charge) to attend the workshop before 4 July, 2017 using the link:

<https://www.nist.gov/news-events/events/2017/07/instrumented-laser-joining-workshop>

Workshop date and time:

11 July, 2017 - 9:00-17:45 Presentations, discussion, and posters

12 July, 2017 – 9:00-16:00 Presentations, panel discussion, and laboratory tours

Location:

The Workshop will be held on the campus of the National Institute of Standards and Technology, 325 Broadway, Boulder, CO 80305

Speaker submissions: Only a few speaking slots remain. If you are interested in presenting at the workshop, please contact John Lehman (lehman@boulder.nist.gov, 303.497.3654) as soon as possible.

Poster session:

A poster session will be held to allow workshop participants to display their work. Please notify the workshop organizer (lehman@boulder.nist.gov) by 1 July, 2017 if you will be bringing a poster. Poster dimensions should be size A0 (width x height: 84 cm x 119 cm, 33 in x 47 in) or smaller.

Event sponsorship: Companies/institutions interested in sponsoring food for workshop breaks should contact John Lehman (lehman@boulder.nist.gov, 303.497.3654) before 1 June, 2017.

Boulder, Colorado Contact: Dr. John Lehman, lehman@boulder.nist.gov

Workshop goal: The purpose of the Instrumented Laser Joining Workshop is to explore the need/feasibility of well-characterized laser joining processes to support modelling predictions of laser joining outcomes. For maximum impact on modelling and prediction, NIST has committed the resources for weld characterization and seeks assistance in prioritizing relevant materials and measurement parameters. We will facilitate discussion and consensus on the needs and priorities for well-characterized laser joining processes. A brief technical summary will be generated.

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