Aug 20th & Aug 21st
8:30 AM - 3:30 PM

Northeastern Summer School of Vibrometry

Location

Northeastern University
Room #EXP 610
805 Columbus Ave.
Boston, MA 02120

Polytec

The Institute for NanoSystems Innovation
Northeastern University

LDV fundamentals and MEMS characterization

Current trends and latest advancements

Welcome to the 1st Summer School of Vibrometry at Northeastern University, a two-day immersive program dedicated to advancing knowledge and hands-on experience in laser Doppler vibrometry (LDV). Hosted by the Institute of NanoSystems Innovation (NanoSI) at Northeastern University (Boston Campus) on August 20–21, this event brings together experts, researchers, and students for in-depth technical talks, interactive demonstrations, and collaborative learning. With sessions covering LDV fundamentals, novel on-chip acoustic metrology, advanced MEMS/NEMS applications, and structural dynamics, participants will gain practical insights through hands-on training using state-of-the-art equipment, including single-point, microscopic, scanning, and long-range vibrometers. Join us as we explore the cutting edge of non-contact vibration measurement technology.

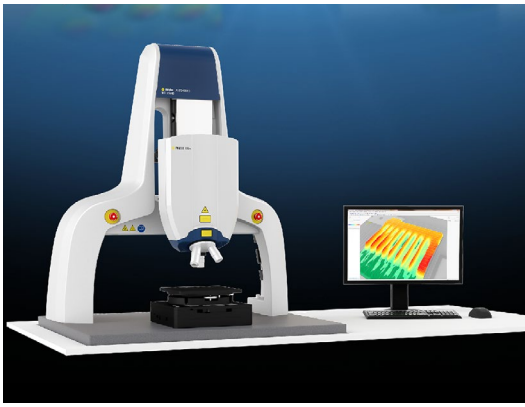
The presentations will be supplemented with hands-on interaction with the attendees. There will be three demo stations situated throughout the lecture hall, so attendees can break out into smaller groups to focus on a particular interest, allowing more interaction with the experts.

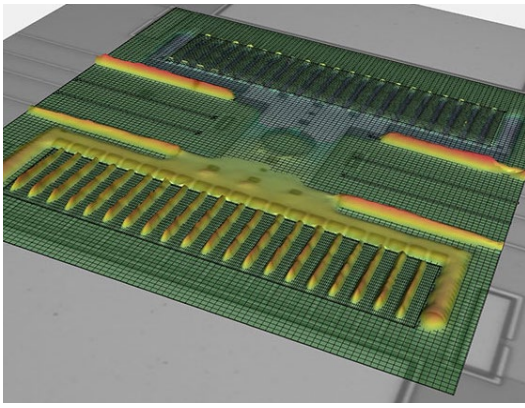
The event is free of charge and open to all. Limited capacity, registration accepted on a first-come, first-serve basis. Breakfast and lunch will be provided.

View full Agenda on the next page.

Register online

Scan the QR Code for more info.





Polytec, Inc., 16400 Bake Parkway, Irvine, CA 92618
Tel: 949-943-3033, info@polytec.com

www.polytec.com

Aug 20th & Aug 21st
8:30 AM - 3:30 PM

Northeastern Summer School of Vibrometry

Location

Northeastern University
Room #EXP 610
805 Columbus Ave.
Boston, MA 02120

Polytec

The Institute for NanoSystems Innovation
Northeastern University

Agenda

Day 1 - Wednesday, August 20

- **8:30 AM - 9:00 AM Registration and light breakfast**
- **9:00 AM - 9:10 AM Welcome,** Prof. Matteo Rinaldi, the NanoSI Institute, Northeastern University
- **9:10 AM - 9:15 AM Summer school program and content introduction,** Prof. Benyamin Davaji, Northeastern University
- **9:15 AM - 10:00 AM Fundamentals of LDV and measurement automation,** Arend von der Lieth, Polytec, Inc.
- **10:00 AM - 10:15 AM Coffee Break**
- **10:15 AM - 11:00 AM Coherent imaging of microwave vibrations in piezo-electric resonators,** Dr. Jason Gorman, NIST
- **11:00 AM - 11:45 AM Ultrasensitive optical detection and visualization of motions in micro/nanomechanical resonators,** Prof. Philip Feng, University of Florida
- **11:45 AM - 1:00 PM Lunch and grouping for hands-on session**
- **1:00 PM - 3:30 PM Live measurement example and hands-on session**
  - Single-point laser vibrometer hands-on tutorial
  - Microscopic LDV measurement on a nonlinear micromirror and MEMS comb
  - Scanning Vibrometer for structural dynamics (macroscopic)
- **3:30 PM - 4:30 PM Northeastern nanofabrication cleanroom and NanoSI institute tours**

Speakers

Dr. Jason Gorman
Project Leader, NIST

Philip Feng
Professor, University of Florida

Benyamin Davaji
Assistant Professor, Northeastern Univ.

Polytec, Inc., 16400 Bake Parkway, Irvine, CA 92618
Tel: 949-943-3033, info@polytec.com

www.polytec.com

Aug 20th & Aug 21st
8:30 AM - 3:30 PM

Northeastern Summer School of Vibrometry

Location

Northeastern University
Room #EXP 610
805 Columbus Ave.
Boston, MA 02120

Polytec

The Institute for NanoSystems Innovation
Northeastern University

Agenda

Day 2 - Thursday, August 21

- **8:30 AM - 9:00 AM Registration and light breakfast**
- **9:00 AM - 9:45 AM Advanced LDV measurements for MEMS applications,** Mario Pineda, Polytec, Inc.
- **9:45 AM - 10:30 AM LDV advanced applications:**
  App1: SLDV supporting the development of an ultrasonic-based antifogging technology, Daniel Ruiz-Cadalso, Worcester Polytechnic Institute & Center for Holographic Studies and Laser micromechaTronics (CHSLT)
  App2: Full-field measurements for anomaly detection of mechanical systems using convolutional neural networks and LSTM networks, Celso de Cabo, Worcester Polytechnic Institute
  App3: Characterizing human middle ear dynamics by combined High-Speed 3D-DIC and Laser Doppler Vibrometry, Jonathan Oliveira Luiz, Worcester Polytechnic Institute & CHSLT
- **10:30 AM - 10:45 AM Coffee Break**
- **10:45 AM - 11:15 AM Lithium niobate integrated microwave acoustics,** Prof. Linbo Shao, Virginia Tech
- **11:15 AM - 11:45 AM Quantitative spectral interferometry: Theory and applications in vibrometry,** Prof. Yizheng Zhu, Virginia Tech
- **11:45 AM - 12:15 PM LDV metrology for integrated acoustic microsystems,** Prof. Benyamin Davaji, Northeastern University
- **12:15 PM - 1:30 PM Lunch and grouping for hands-on session**
- **1:30 PM - 3:30 PM Live measurement example and hands-on session**
  - Single-point laser vibrometer hands-on tutorial
  - Microscopic LDV measurement on a nonlinear micromirror and MEMS comb
  - Scanning Vibrometer for structural dynamics (macroscopic)

Speakers

Linbo Shao
Assistant Professor, Virginia Tech

Jonathan Oliveira Luiz
Ph.D. Candidate, Mechanical Engineering, Worcester Polytechnic Institute

Yizheng Zhu
Associate Professor, Virginia Tech