# 5th Midwest Imaging and Microanalysis Workshop at Notre Dame

*New Trends in In-situ and High Resolution Electron Microscopy for Nanotechnology, Materials and Bio-Sciences*

**Tuesday, May 8th, 2018**

## Location: McKenna Hall – **Room 210-214** (lectures) and Stinson-Remick Hall, Room B03 (EM tours).

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### 1st day: May 8th, 20118

8:30 am Registration, Demo sign-up, Poster set-up (McKenna Hall, Upper Atrium).

**Session 1. Chair: Sergei Rouvimov** (McKenna Hall – Room 210-214)

9:00 - 9:05 am Welcome to Notre Dame, Bradley Smith, Director, NDIIF

9:05 – 9:35 am “New possibilities for STEM using fast pixelated detectors”, Ian MacLaren, University of Glasgow, UK

9:35 – 10:05 am “New carbon allotropes recovered from high-pressure and high temperature”, Jianguo Wen, ANL

10:05 – 10:35 am “Advantages of direct detection and electron counting for electron energy loss spectroscopy data acquisition”, Paolo Longo, GATAN

10:35 - 11:05 “The future of 4D materials science using electron beams” Jian-Min Zuo, University of Urbana-Champaign, Illinois

### 11:05 – 11:20 am COFFEE BREAK

**Session 2. Chair: Alex Mukasyan** (McKenna Hall – Room 210-214)

11:20 –11:45 am "Cryo-electron eomography: in situ insights ", Blanca Carbajal Gonzalez, Thermo Fisher Scientific, Inc.

11:45 - 12:10 pm “Automation in TEM: improving acquisition and imaging quality in STEM and TEM” C. Austin Wade, Thermo Fisher Scientific, Inc.

12:10 – 12:35 pm "Determining atomic structure from 2D to 3D with high-energy electron beams", Robert Hovden, UM

12:35 – 1:00 pm "Knowing all the angles", Mark Kelsey, Bruker

1:00 – 1:25 pm “Nanoscale EDS: low energy analysis in the SEM”, Michael Hjelmstad, Oxford Inc,

**1:25 -2:30 pm LUNCH and POSTER SESSION** (McKenna Hall –Posters – Upper Atrium --- Luncheon –McKenna Dining Room, Lower Level).

**Session 3. Chair: Bradley Smith** (McKenna Hall – Room 210-214)

2:30 - 2:45 pm NDIIF Award Winner – “Heterogeneous cadherin expression and

multicellular aggregate dynamics in ovarian cancer dissemination”, Yuliya Klymenko. Notre Dame

2:45 - 3:00 pm NDIIF Award Winner – “Whole blood clot optical clearing for nondestructive 3D imaging and quantitative analysis”, Jeremiah Zartman, Notre Dame

3:00 - 3:30 pm “Application of volumescope for serial block face imaging”, Christopher J. Gilpin, Purdue University

3:30 - 4:00 pm “TEM application in materials science”, (TBD), Purdue University

4:00 - 4:20 pm “Acquisition, segmentation, and quantification of images of zebrafish embryonic development”, David M. Umulis, Purdue University

4:20-4:40 pm “Imaging and quantitative analysis of calcium signaling during epithelial morphogenesis“, Jeremiah Zartman, ND

4:40 - 5:00 pm Poster Awards and Prizes announcement

5:00 - 5:30 pm **MWIMW and NDIIF Business meeting**

**6:00 pm DINNER for speakers -** Rohr’s at the Morris Inn

**2nd Day: May 9th, 2018 Tours of NDIIF facilities** (**EM** Stinson-Remick Hall, Rooms B03, B10 and **Bio Facility** Galvin)

9:00 am -11:00 am Tutorial on “New EELS capabilities”, Paolo Longo, GATAN

12:00-1:00 pm Lunch/Discussion Female Students in Microscopy: pursuing a career in TEM research,Mina Asghariheidarlou, NDEMC President, Location: TBD

## Note: A detailed schedule will be provided at the registration.

For additional workshop information and campus map visit: <http://imaging.nd.edu>

**Sponsors:** Thermo Fisher Scientific, Gatan, Bruker, Oxford, Hitachi High Technologies - America, ND Energy, ND Nano, EE Department, CBE Department, ND Research Office, ND College of Engineering, ND College of Science