



CELEBRATING
the wonderful life and contributions of

JOHANNES WEERTMAN

May 11, 1925 - October 13, 2018

and

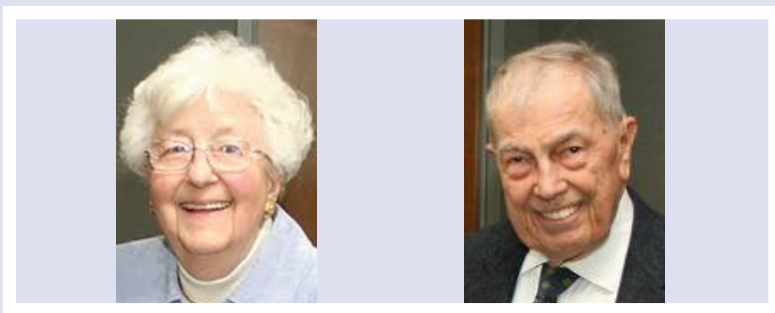
JULIA R. WEERTMAN

February 10, 1926 - July 31, 2018

Symposium and Remembrance

November 16, 2018

Evanston, Illinois



Thank You

Dear Friends –

Thank you for joining us to celebrate the lives and legacy of Hans and Julia Weertman.

Julia and Hans were pioneers, colleagues, friends, teachers, mentors, and role-models in the emerging field of materials science and engineering. How fortunate for Northwestern that Morrie Fine successfully recruited Hans to join the faculty of the first-ever Graduate Department of Materials Science in 1959. A few years later, in 1963, Hans was appointed to the faculty of Geological Sciences (now Earth and Planetary Sciences). Magnifying Northwestern's good fortune, Julia joined the MSE faculty in 1972, after an extended time out for "raising our two children," during which their classic text, "Elementary Dislocation Theory," and a number of seminal papers were published.

Julia and Hans were each elected members of the National Academy of Engineering and the American Academy of Art and Sciences. Deeply respected by their students and colleagues, they received many honors celebrating their contributions to materials science and engineering, geophysics and education. We look forward to a day of talks and personal recollections that illuminate their particular influence on these fields and celebrate lives well-lived.

Welcome.

David Dunand
David Seidman
Kathleen Stair

Schedule

- 8:30 AM** Welcome
Julio M. Ottino, Dean, Robert R. McCormick School of Engineering and Applied Science
- Introduction
Erik Luijten, Chair of Materials Science and Engineering and Professor of Materials Science and Engineering, Engineering Sciences and Applied Mathematics, and (by courtesy) Physics and Astronomy
- Session 1 chaired by David Dunand, Professor of Materials Science and Engineering, Northwestern University**
- 8:40 AM** *Teachers and Role Models in Things Big and Small*
Kevin Hemker, Alonzo G. Decker Chair in Mechanical Engineering at Johns Hopkins University; President TMS
- 9:00 AM** *Hans & Julia: A Legacy of Mentorship, Fellowship and Cutting Edge Research*
Andrea Hodge, Professor, USC Viterbi School of Engineering Arthur B. Freeman Professorship; Vice Provost for Undergraduate Programs, University of Southern California (USC)
- 9:20 AM** *Retaining the Nano*
Helena Moens-Van Swygenhoven, Professor, Paul Scherrer Institut (PSI) and École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
- 9:40 AM** *The Weertmans and the San Andreas Fault: How Their Dislocation Solution became a Key Tool in Earthquake Studies.*
Seth Stein, William Deering Professor and Institute for Policy Research Associate, Department of Earth and Planetary Sciences, Northwestern University; presented by **James Neely**, PhD student Earth and Planetary Sciences, Northwestern University
- 10:00 AM** Remembrance by **Bill Nieman**, Digital Industrial Analytics and
PM Commercial Success Leader
- 10:20 AM** BREAK

Schedule

Session 2 chaired by David Seidman, Walter P. Murphy Professor of Materials Science and Engineering, Northwestern University

10:40 AM *Lines, Points, (not-so-) Ridiculously Disordered Solids, and the Weertmans*

Linn Hobbs, Professor Emeritus of Materials Science and Professor Emeritus of Nuclear Engineering, Massachusetts Institute of Technology (MIT)

11:00 AM *Dislocation Adventures: A Tribute to Julia and Hans Weertman.*

Marc Meyers, Distinguished Professor in Materials Science at the University of California, San Diego

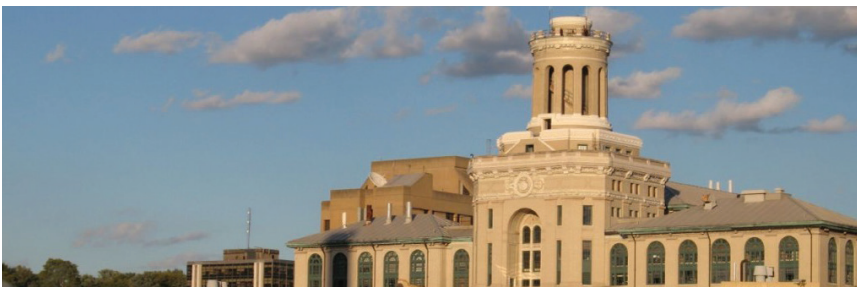
11:20 AM *3D X-ray Diffraction Characterization of an Intact Egyptian Mummy*

Stuart Stock, Ph.D., Research Professor of Cell and Molecular Biology, Feinberg School of Medicine, Northwestern University

11:40 AM *Nanocrystalline functional intermetallics by Severe Plastic Deformation*

Koichi Tsuchiya, Ph.D., Managing Director, International Center for Young Scientists (ICYS), Group Leader, Corrosion Resistant Alloy Group, Research Center for Structural Materials, National Institute for Materials Science, Japan

12:00 PM LUNCH



Carnegie Mellon University in Pittsburgh, PA - formerly known as Carnegie Institute of Technology - where both Weertmans studied and Julia became the first female undergraduate in the College of Engineering and Science.

Schedule

Session 3 chaired by Yip-Wah Chung, Professor of Materials Science and Engineering and (by courtesy) Mechanical Engineering, Northwestern University

- 1:00 PM** *Why Deep Earthquakes Happen (Dynamically Induced Phase Transformations Under Pressure)*
Xanthippi Markenscoff, Distinguished Professor of Solid Mechanics, Department of Mechanical & Aerospace Engineering, University of California, San Diego
- 1:20 PM** *Synthesis and Mechanical Behavior of Nanocrystalline Materials: A Northwestern / Argonne Partnership*
Jeffrey A. Eastman, Ph.D., Senior Materials Scientist, Argonne National Laboratory
- 1:40 PM** *The Weertman Model of Dislocation Creep in Ice - Underlying Mechanism and Current Applications*
David M. Cole, Ph.D., Research Civil Engineer, CRREL, U.S. Army Corps of Engineers; Adjunct Research Professor, Clarkson University; Adjunct Professor of Engineering Dartmouth
- 2:00 PM** *Hans Weertman as a Young Glaciologist*
Douglas R. MacAyeal, Professor, Department of the Geophysical Sciences, University of Chicago
- 2:20 PM** Remembrance by **Carolyn Aita**, Distinguished Professor Emeritus, Department of Chemistry and Biochemistry, University of Wisconsin at Milwaukee
- 2:40 PM** *Julie Weertman and Her Relationship with Determination*
Gabrielle Long, Ph.D., Scientific Advisor, Argonne National Laboratory
- 3:00 PM** BREAK

Schedule

Session 4 chaired by **Gregory Olson, Walter P. Murphy Professor of Materials Science and Engineering, Northwestern University**

3:20 PM Remembrances by **Carelyn E. Campbell, Ph.D., Metallurgist, Metallurgy Division, National Institute of Science and Technology (NIST)** followed by

Lynne Karabin, Ph.D., Section Head, Materials Development Division, Arconic Technology Center

3:40 PM Remembrances by **Peter Jemian, Ph.D., Physicist, Advanced Photon Source, Argonne National Laboratory** followed by

Howard Sizek, Ph.D., Branch Chief at Air Force Research Laboratory, Wright-Patterson Air Force Base

4:00 PM *“Gas-Like” Grain Boundaries and Inverse Hall-Petch*

Paul G. Sanders, Associate Professor, Materials Science and Engineering and Affiliated Associate Professor, Mechanical Engineering-Engineering Mechanics, University of Michigan; Adjunct Associate Professor, School of Information Technology, Faculty of Science, Engineering and Built Environment at Deakin University, Australia

4:20 PM Remembrance by **William Nix, Lee Otterson Professor in the School of Engineering, Emeritus, Materials Science and Engineering, Stanford University**

4:40 PM Remembrance by **James Conley, Clinical Professor of Innovation & Entrepreneurship, Kellogg School of Management, Northwestern University**

5:00 PM SYMPOSIUM CONCLUDES

5:30 - 7:30 PM **Reception | J Wing Atrium - 2nd Floor | Technological Institute
2145 Sheridan Rd., Evanston**

Weertman Fellowship

The Johannes and Julia Randall Weertman Graduate Fellowship, established in 2014, is an achievement-based award to recognize a Ph.D. candidate in materials science and engineering for her or his outstanding scholarly achievements and promise. The Fellowship was established in honor of the tremendous contributions of Hans and Julia Weertman to the discipline of Materials Science and Engineering and to our department.

RECIPIENTS



2014 Deep Jariwala (Ph.D. '15, Hersam)

Assistant Professor, Electrical and Systems Engineering, and Materials Science and Engineering at University of Pennsylvania

Interests: Study, design and development of nanometer and atomic scale devices, materials and interfaces for applications in computing, sensing, information technology and renewable energy.



2015 Logan Ward (Ph.D. '16, Wolverton)

Post-doc, Computation Institute, University of Chicago

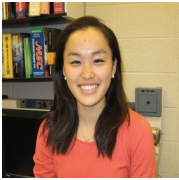
Interests: Developing computational methods that enable faster development of materials, and to create software that makes these capabilities easily accessible to others.



2016 Lanhe Zhang (Ph.D. '17, Torkelson)

Senior Engineer, Dow Chemical Company, Freeport TX

Interests: Low molecular weight polymers/photoresists, thin polymer films, cyclic polymers, polymerization kinetics, and polymer composites. Mentorship of undergraduate students that resulted in papers published in peer-reviewed journals.



2017 Ha-Kyung Kwon (Ph.D. '18, Olvera de la Cruz & Shull)

Research Scientist, Toyota Research Institute, CA

Interests: Charged-neutral copolymer organization



2018 Riley Hahus (Snyder group)

Interests: How heat transport in thermoelectrics is affected by microstructure.

If you would like to make a gift in support of the Weertman Fellowship, please contact Patrick Hankey at (847) 467-2950.

Thank you!



Julia and Hans with their car – the license plate reads
“NANUXTL”