



The Materials Information Society

LONG ISLAND CHAPTER

METALLAGRAM



Volume 62 Issue 7

Chapter website: <http://DoL1.eng.sunysb.edu/asm/>

Sustaining Members Night

Next Meeting Wednesday, March 24, 2021

Where On-Line via Zoom (at 6:00 pm)

Topic: Diffraction and Radiography at High Pressure

Speaker: Donald J. Weidner, Stony Brook University

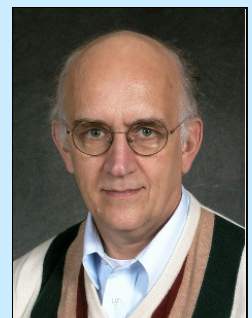
The Zoom room will open at 5:30 pm if anyone wants to test and chat.

RSVP to Jim Quinn (jquinn11733@gmail.com) for the Zoom information, at least 24 hours prior to the meeting.



The Multi-Anvil Facility

Professor Donald J. Weidner



The Speaker

Prof. Weidner holds a PhD from MIT (1972) and a AB from Harvard (1967), and has been a faculty member at Stony Brook University since 1972. He studies the physical and chemical state as well as the dynamic processes of the Earth's mantle and crust. He pioneered an experimental technique based on Brillouin spectroscopy for determining the elastic properties of single crystals. This technique allows such measurements on both natural and synthetic materials, thus enabling the determination of acoustic properties of phases that are stable only deep in the Earth's interior. This technique is being extended to high pressure, with the diamond anvil cell, and to high temperature.

Professor Weidner, along with Professors Prewitt and Liebermann, built the high-pressure facility at Stony Brook. He leads the Stony Brook large-volume, high-pressure studies with synchrotron radiation. This facility is used to determine the equation of state of Earth materials, identify phase stability fields of minerals and the yield strength of earth materials. He received the 1981 James B. Macelwane award to early career scientists in recognition of their significant contributions to Earth and space science, and the Inga Lehmann Medal (2011), awarded to a senior scientist in recognition of outstanding contributions to the understanding of the structure, composition, and dynamics of the Earth's mantle and core, both awards given by the American Geophysical Union.

The Topic

To understand the deep Earth, we must know the physical and chemical properties of the materials that make up the Earth at high pressure and temperature. The synchrotron has served as a vital source of X-rays that have the energy range and flux to penetrate into samples at high pressure and aid in defining many of these valuable data. We will look at equipment and data that are used for these studies. As an example, we will look at an experimental approach to measure the bulk modulus of partially molten rocks at seismic frequencies and deep Earth conditions.



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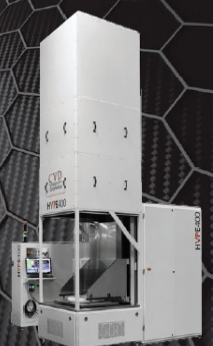
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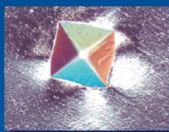
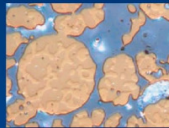
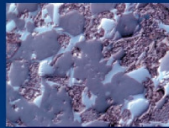
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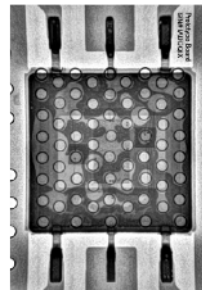
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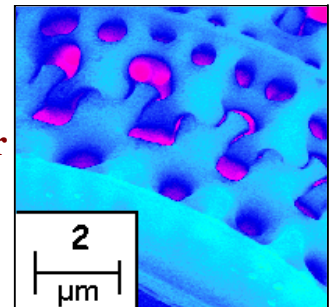
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Long Island Chapter Meeting Schedule

Apr ??, 2021 **Students Night**
Topic; Final Project Review
Various speakers
Place: TBA

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