

# ZFSP 2023 Workshop Break-out Session: Planetary Physics / Materials (Majorca)

Organizers: Pat Kalita, Sakun Duwal, and Chad McCoy

## Wednesday August 9 – Room: Majorca

### *Static and Dynamic Compression: Modern Synergies Breakout Session & Discussion*

Chair: Pat Kalita, SNL

Compression processes can be categorized by timescales: static isothermal; sonic - adiabatic reversible (isentropic) and supersonic - adiabatic irreversible (Rankine-Hugoniot). Historically advances in these fields have been interconnected, drawing on discoveries from one another. This interdisciplinary session explores the modern synergies between static and dynamic compression, from pressure standards to phase transitions and EOS design.

3:45 – 4:15 pm: **Jen Jordan, LANL**

“Bridging Static and Dynamic High-Pressure Experiments in Polymers”

4:15 – 4:45 pm: **Minta Akin, LLNL**

“Combining Platforms to Solve Hard Problems”

4:45 – 5:15 pm: **Damian Swift, LLNL**

“Physics-Based Models of Kinetic Processes to Relate Measurements from  
High-Pressure Experiments Across Time Scales”

5:15 – 5:45 pm: **Scott Crockett, LANL**

“The Not So Standard “Gold” Pressure Standard”

## Thursday August 10 – Room: Majorca

Chair: Sakun Duwal, SNL

1:15 – 1:40 pm: **Andrew Porwitzky, SNL**

“Z for beginners.”

1:40 – 2:05 pm: **Jean-Paul Davis, SNL**

“Shock-ramp and ramp capabilities at Z.”

2:05 – 2:30 pm: **Tom Hartsfield, SNL**

“Status of temperature measurements at Z.”

2:30 – 2:40 pm: BREAK

2:40 – 3:00 pm: **Jonathan Skidmore, First Light Fusion**

“Initial results from the development of a shock amplification EoS platform.”

3:00 – 3:20 pm: **Amanda Dumi, SNL**

“An ab initio molecular dynamics treatment of liquid oxygen.”

3:20 – 3:40 pm: **Wade Mans, University of New Mexico**

“The effects of pressure, temperature, and iron-enrichment on shock features found within olivine gas gun experiments.”

3:40 – 4:00 pm: **Armin Bergermann, University of Rostock**

“Ab initio simulations for hydrogen and water mixtures”

#### **Friday August 11 – Room: Majorca**

Chair: Chad McCoy, SNL

9:45 – 10:15 am: **Josh Townsend, SNL**

“Equations of State of Ferropericlase from LDA+Usc”

10:15- 10:45 am: **Ian Ocampo, Princeton University**

“Extreme lowering of phase transition pressures in dynamically compressed TiO<sub>2</sub>.”

10:45 – 11:05 am: **Melia Kendall, U. of Colorado Boulder**

“Dynamic Compression of Heterogeneous Materials.

11:05 – 11:25 am: **Charlie Zoller, U. of Illinois Chicago**

“Aluminum reflectance measurements using diamond anvil cell.”

11:30 – 12:00 pm: Plenary Closing (Barcelona)