

Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Alinas Bowl: Demonstration of Macroscale Wigner Crystallization ALEXANDER BATALLER, North Carolina State University — The study of strongly-coupled and highly-correlated plasma is an important topic within the broader plasma physics community. When brought to extremes, strongly-coupled plasma can undergo solidification in a process known as Wigner crystallization. Example systems where crystallization has been observed include laser-cooled ion traps, electrons on the surface of liquid helium, and within the ultra-dense interior of planet-sized stars. Unfortunately, a hands-on demonstration of Wigner crystallization for instructing and inspiring the next generation of scientists is missing from our educational toolbox. Suitable for high school and university students, Alina's bowl will be presented which readily forms Wigner crystallization of macroscale objects using a gravity well. The strongly-coupled plasma within Alina's bowl exhibits long-range spatial order over a vast parameter space, which is ideal for students who wish to explore various topics such as plasma and condensed matter physics, classical and statistical mechanics, electrostatics, and tribology.

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Date submitted: 16 Jul 2019

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