Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Piezo-thermal effect in gas and plasma[1] JACE WAYBRIGHT, South Dakota State University, ELIJAH KOLMES, SETH DAVIDOVITS, IAN OCHS, NATHANIEL FISCH, Princeton Plasma Physics Laboratory — When compressed, a gas immersed in a potential field has been predicted to develop a temperature differential [1]. This phenomena, called the piezo-thermal effect, results in hot and cold regions corresponding to the locations of the maximum and minimum potential energy respectively. Previous numerical simulations confirmed this temperature differential for centrifugal and gravitational potentials. In this study, generalizations of the effect will be discussed. Although plasma features a number of complications, similar effects might also be imagined in compressing plasma.

[1] V.I. Geyko and N.J. Fisch, Phys. Rev. E **94** 042113 (2016).

[1]This work was made possible by funding from the Department of Energy Workforce Development for Teachers and Scientists (WDTS) for the Summer Undergraduate Laboratory Internship (SULI) program. This work is supported by the US DOE Contract No. DE-AC02-09CH11466.

Jace Waybright
South Dakota State University

Date submitted: 12 Jul 2019 Electronic form version 1.4