

Abstract Submitted  
for the EGLSF21 Meeting of  
The American Physical Society

**Analogue leptogenesis in chirped excitation**<sup>1</sup> MATTHEW COMMONS, NICOLE ABEND, JOHNATHON GEORGE, IAN JONES, AARON WEISER, MICHAEL CRESCIMANNO, Youngstown State University, YSU QUANTUM OPTICS GROUP TEAM — The effective discrete conjugation symmetry that arises in the rotating wave frame of quantum optics is the analogue of the discrete symmetry "C" in field theory. Breaking this conjugation symmetry leads to a universal framework for understanding asymmetries between up- and down-chirped optical excitation in multilevel quantum systems. We explain the relevant quantum optics theory and our experiment using diode lasers and an atomic vapor cell that demonstrate the phenomenological correspondence to the simplest model of leptogenesis, the process by which our early universe allegedly evolved from equal amounts of matter and antimatter to its present matter excess.

<sup>1</sup>Analogue Leptogenesis in Chirped Excitation

Matthew Commons  
Youngstown State University

Date submitted: 28 Oct 2021

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