

Abstract Submitted  
for the NEF21 Meeting of  
The American Physical Society

**Electrical Properties of Liquid Crystal Cells**<sup>1</sup> DAVID WEBB, Central Connecticut State University, YURIY GARBOVSKIY, Central Connecticut State University Department of Physics and Engineering Physics — Liquid crystals are ubiquitous electro-optical materials. Their applications include liquid crystal displays, tunable optical components such as filters, lenses, waveplates, and shutters, to name a few. As a rule, the tunability of liquid crystal devices is achieved by applying electric fields across mesogenic materials resulting in a reorientation of liquid crystals. Ions present in liquid crystals in small quantities can alter this reorientation and compromise the overall performance of liquid crystal devices. Therefore, research into the electrical properties of liquid crystals is very important because it allows the identification of materials suitable for particular applications. Electrical properties of liquid crystals are studied using liquid crystal cells. In this talk, we discuss how interactions between ions and substrates of a liquid crystal cell can affect the measured values of DC conductivity. Because of these interactions, the measured DC conductivity of liquid crystals can depend on the cell thickness. Important information about ions in liquid crystals can be deduced by analyzing this dependence.

<sup>1</sup>The authors would like to acknowledge the support provided by the CSU-AAUP Faculty Research Grant and by the Faculty Student Research Grant

David Webb  
Central Connecticut State University

Date submitted: 15 Oct 2021

Electronic form version 1.4