

Abstract Submitted  
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**PVDF Smart Sensors in the Physics Classroom**<sup>1</sup> ERIC HAGEDORN<sup>2</sup>, MICHAEL EASTMAN<sup>3</sup>, GUILLERMO CARBAJAL-FRANCO<sup>4</sup>, University of Texas at El Paso — Films of PVDF (polyvinylidene difluoride), a thermoplastic fluoropolymer, can be made such that they have strong piezoelectric and pyroelectric properties. Commercially available metal coated PVDF sensor elements can be used with appropriate data input electronics and a computer to measure a variety of interesting physical phenomena. This presentation describes two demonstrations with PVDF sensors that were used in an introductory undergraduate course that taught basic chemistry and physics using materials science. The circuits, software, and data acquisition hardware will be briefly described along with data from actual runs that illustrate both the piezo and pyro-electric properties of these sensors. The educational context for this work will be elaborated on as well.

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