

Abstract Submitted  
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**Experimental studies of low-density fluid phases in tunable dipolar colloids**<sup>1</sup> ANAND YETHIRAJ, NING LI<sup>2</sup>, HUGH NEWMAN, MANUEL VALERA<sup>3</sup>, IVAN SAIKA-VOIVOD, Memorial University — Experiments of low-density colloidal fluid phases in the presence of an external electric field are presented. We obtain angular order parameters as a function of the applied electric field. When plotted against a dimensionless dipolar strength parameter, the order parameters for different particle sizes fall on a single curve, suggesting that colloids in a fluid phase in the presence of electric fields do indeed interact by an effective point dipolar interaction. We then explore the statistics of particle packings at low-density and extract the experimental compressibilities and equation of state for these dipolar colloids.

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