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Superconducting Properties of a Nanoparticle Assembly of the Organic Conductor (TMTSF)2ClO4 LAUREL WINTER, Los Alamos National Laboratory, National High Magnetic Field Laboratory (NHMFL), EDEN STEVEN, JAMES BROOKS, SHERMANE BENJAMIN, Florida State University, NHMFL FL, JU-HYUN PARK, NHMFL FL, DOMINIQUE DE CARO, CHRISTOPHER FAULMANN, LYDIE VALADE, KANE JACOB, IMANE CHTIOUI, CNRS, University of Toulouse, BELEN BALLESTEROS, JORDI FRAXEDAS, ICN2, CSIC Barcelona — While the study of thin-film and nanoparticle geometries on semiconductor devices, type-I elemental superconductors, and even single-molecular magnet materials have been explored, progress on thin-film and nanoparticle organic superconductors – in particular charge-transfer organic salts – has remained elusive. Recent refinements of synthesis conditions have produced nanoparticles of the Bechgaard salt $(TMTSF)_2ClO_4$. High resolution TEM studies have determined these nanoparticles are approximately 3-5 nm in size, which form nanoparticle clusters that are on average 34 nm in size[1]. In order to investigate the properties of these nanoparticles, randomly oriented assemblies were studied in magnetic fields up to 16 T, using a high sensitivity inductive method in a dilution refrigerator, the results of which show that the ground-state properties of the nanoparticle assembly compares favorably with the bulk-single-crystal material[2]. [1] D. de Caro *et al.*, *Eur. J. Inorg. Chem.*, **2014**, 4010 (2014). [2] L. E. Winter *et al.*, *Phys. Rev. B.*, **91**, 035437 (2015).

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