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**AC specific heat and MCE measurements in 50T pulsed magnetic fields** YOSHIMITSU KOHAMA, MARCELO JAIME, MPA-CMMS, Los Alamos National Laboratory, CHRISTOPHE MARCENAT, CEA-Grenoble, Institut Nanosciences et Cryogonie, ADAM ACZEL, GRAEME LUKE, Department of Physics and Astronomy, McMaster University — Specific heat ( $C_p$ ) and magnetocaloric effect (MCE) are useful tools in the experimental determination and understanding of the temperature-magnetic field phase diagram of materials. While previous studies are mostly limited to measurements in DC magnets, here we discuss a new AC calorimeter to measure these properties in 250 ms, 50T capacitor bank- and motor generator-driven pulsed magnetic fields. As a test sample we choose the spin  $S = 1/2$  dimer compound  $\text{Sr}_3\text{Cr}_2\text{O}_8$ , which shows a field-induced phase transition between  $H_{c1} = 30.4$  T and  $H_{c2} = 62$  T. We compare our pulsed field data with the previous results measured in DC fields and analyze advantages and shortcomings of our new approach.

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