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Specific Heat of $Pr_{1-x}Nd_xOs_4Sb_{12}$ Near 300K[1] TAYLOR MCCULLOUGH-HUNTER, THOMAS NICHOLS, HANK ANDERSON, PEI-CHUN HO, Department of Physics, California State University, Fresno, M. BRIAN MAPLE, Department of Physics, University of California, San Diego, TATSUYA YANAGISAWA, Department of Physics, Hokkaido University, Japan — The filled skutterudite compound, $PrOs_4Sb_{12}$, displays unconventional superconductivity at a relatively low critical temperature T_c =1.85K. To gain better insight into this phenomenon, we study the effect of ferromagnetism on the unconventional superconductivity by using Neodymium- doped samples $Pr_{1-x}Nd_xOs_4Sb_{12}$. We measured the heat capacities of the sample with x=1, 0.75, 0.5, and 0.25 using relaxation calorimetry of finite heat pulse width in a cryocooler system from 11K to 300K. The electronic specific heat coefficient γ, from the analysis of specific heat, of end member compound x=1 concentration is found to be approximately 60 mJ/K^2-mol; this is smaller than previously estimated specific heat of approximately 520 mJ/K^2-mol, but it is still relatively large when compared to simple metals. Also at high temperature (above 11K), there are no deviations in the specific heat data between sample with x=1 and x=0.5 concentration. This poster will describe the technique used in obtaining the data and report the result analysis of specific heat measurements from sample with x=1, 0.75, 0.5, and 0.25 concentrations.

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