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Implementation of the two time-constant model for extracting heat capacity MUADH AL NADABI, KATE A. ROSS, Colorado State University — Heat capacity is the heat required to change the temperature of a material. The heat capacity of solids can provide substantial information about the lattice and magnetic properties of materials. As part of their commercially available Physical Properties Measurement System (PPMS), Quantum Design Inc. created a program that measures thermal relaxation curves and extracts the heat capacity via a two-time constant model. This model consists of two coupled differential equations that describe the temperature of the sample and the temperature of the measurement platform as a function of time. However, the commercial program does not provide the ability to re-fit the raw data with restricted variable ranges to improve the fits, and we have observed poor fits for some curves. We are creating a program using the two-time constant model that will allow the user more control over the fitting of the raw thermal relaxation data. We will present the model and outline our approach.

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