## Effect of Zr Doping on the Magnetic and Phase Transition Properties of $$VO_2$$ Powder

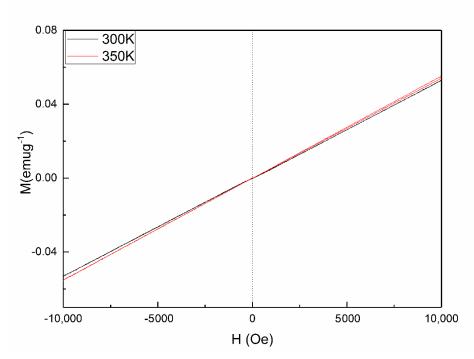


Fig. S1. Moment vs applied field curves of un-doped VO<sub>2</sub> powder samples before and after phase transition (300K and 350K).

From Fig.S1, the slope of un-doped VO<sub>2</sub> powder samples after phase transition is slightly larger than that before phase transition. But no obvious differences were observed in the samples. The un-doped VO<sub>2</sub> powder samples show a paramagnetic behavior before and after phase transition.

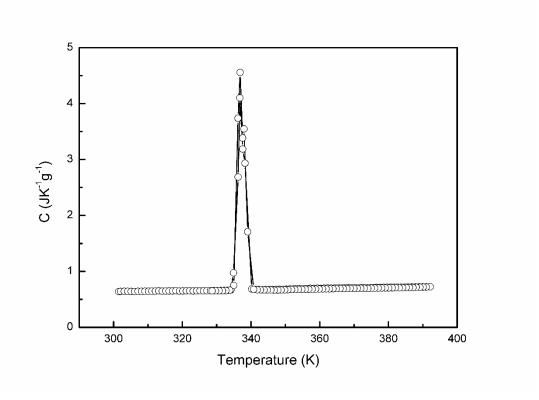


Fig. S2. Specific heat capacity vs temperature of un-doped VO<sub>2</sub> samples.

From Fig. S2, a sharp peak appear at phase transition temperature, which means that the phase transition of  $VO_2$  ascribes to a first-order transition.