Photoacoustic Study on Phase Transitions in $La_{1-x}Ca_xMnO_3$ (x=0.2, 0.3, 0.4)

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Abstract - **The phase transitions in the manganite perovskite compounds $La_{1-x}Ca_xMnO_3$(x=0.2, 0.3, 0.4) have been studied using magnetization, resistivity, and photoacoustic measurements. The phase transition temperatures determined from the anomaly of photoacoustic signal are consistent with those determined from the magnetization measurements. For x=0.3, the paramagnetic to ferromagnetic phase transition can be regarded as a second order phase transition with no latent heat at the phase transition temperature. The relative value of the multiplication of specific heat and thermal conductivity can be obtained from the photoacoustic signal using Rosencwaig and Gersho's theory.**

Index Terms - **photoacoustic effect, phase transition, manganite.**