

Title: Infrared Emissivity of $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$ under 0.76-2.5 μm and 2.5-500 μm Radiation Fields

Abstract: $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$ was prepared to investigate the infrared emissivity of the sample under 0.76-2.5 μm and 2.5-500 μm infrared fields. The sample exhibited characteristic peaks of rhombohedral perovskite structure at 298-318 K, and split of the main peak weakened with increasing temperature. Intensity of the ferromagnetic resonance peak enhanced with increasing temperature, and the peak was shifted toward high magnetic field. A weak paramagnetic resonance peak appeared at 318 K, indicating that ferromagnetic-paramagnetic transition was occurring. The temperature of the sample under 2.5-500 μm field was higher than that under 0.76-2.5 μm . The emissivity of the sample increased with radiation time under 2.5-500 μm , but it had no obvious changes at about 0.665 under 0.76-2.5 μm . The emissivities at the same temperature fields were higher than those under 0.76-2.5 μm and 2.5-500 μm fields, respectively. It suggested that 0.76-2.5 μm and 2.5-500 μm radiations had inhibition effect on emissivity of $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$.