

List of Tables

Table 4.1: Rietveld Refined structural parameters of Fe doped LaSrMnO ₃ samples.	87
Table 4.2: Optimized structural parameters of Fe doped LSMO using density functional theory.	88
Table 4.3: Atomic percent of the EDAX pattern recorded of studied samples.	95
Table 4.4: Raman mode position (cm ⁻¹) of the prepared samples at room temperature (300 K) and low temperature at (80K).	99
Table 4.5: The calculated formation energy ΔH _F (eV) of Fe doped LaSrMnO ₃ .	106
Table 4.6: Raman mode position (cm ⁻¹) of the prepared samples at room temperature (300 K) using DFT.	111
Table 5.1: The Rietveld refinement structural parameters of Fe doped LSMO nanoparticles.	127
Table 5.2: Optimized structural parameters of Fe doped LSMO using density functional theory.	128
Table 5.3: Atomic percent of the EDAX pattern recorded of studied samples.	131
Table 5.4: The Raman active frequency mode of LaSrMnFeO ₃ nanoparticles.	137
Table 5.5: The calculated formation energy ΔH _F (eV) of Fe doped LaSrMnO ₃ prepared by sol-gel method.	143
Table 5.6: The Raman active frequency mode of LaSrMnFeO ₃ using density functional theory. The bracket data are experimental value.	144
Table 6.1: Raman frequency of Fe doped LSMO samples at 300 K. The bracket values are DFT data.	155
Table 6.2: The calculated formation energy ΔH _F (eV) of Fe doped La _{0.67} Sr _{0.33} MnO ₃	156