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Synthesis and optical properties of $\text{La}_{1-x}\text{Ce}_x\text{MnO}_3$ studied by infrared reflectivity measurements

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Highlights

- Synthesis of $\text{La}_{1-x}\text{Ce}_x\text{MnO}_3$ by using Sol-gel method for first time.
- The substitution of Ce into LaMnO_3 causes strong structural distortion.
- Optical conductivity has been calculated to identify the possible structural distortion induced by the doping of Ce.
- Splitting and softening of phonons was observed as Ce induced.
- Energy band gap found to decrease with the increase in X, reflecting the metal to insulator transition.

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