Probing Co- and Fe-doped LaMO₃ (M = Ga, Al) perovskites as thermal sensors.

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Supporting Information

Figure S1: Extraction method of Racah parameter B and crystal field Δ for an attribution of 1st allowed and 2nd allowed transition equal respectively to 750 nm and 500 nm.

The way we have extracted the Racah parameter B and the crystal field is based on a trivial graphic exploitation of the Tanabe-Sugano diagram for d⁷ configuration. The above Figure shows that the shoulder of absorbance observed at about 850 nm could correspond to the forbidden transition from ¹A₁ to ³T₂ state.

Figure S2: Kubelka-Munk transform (K/S = (1 - R²)/(2R) with 1-R = A, R: Reflectivity, A: Absorption) of the two absorption bands (after background subtraction) associated with the d-d Co³⁺ ion transitions.

The nearly linear relation between K/S intensities and the doping ion concentration shows non-deviation between the cobalt target concentration and the efficient concentration inside the perovskite material.

Figure S3: Arrhenius-type plot of the conductance. Data are represented by the open circles and the line is a fit of the raw data considering an activation energy model for the conductance.

Resistivity measurement was carried out using a standard home made four-probe dc technique