



Supporting Information

for

Synthesis and characterization of quaternary La(Sr)S–TaS₂ misfit-layered nanotubes

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Additional experimental data and calculations

Table S1. Diameter distribution of the tubes

Sample	Average Inner Diameter (nm)	Average Outer diameter (nm)	Number of Tubes Analyzed
$\text{Sr}_x\text{La}_{1-x}\text{-TaS}_2$ (10 at% Sr)	38	134	18
$\text{Sr}_x\text{La}_{1-x}\text{-TaS}_2$ (20 at% Sr)	47	133	9
$\text{Sr}_x\text{La}_{1-x}\text{-TaS}_2$ (40 at% Sr)	78	216	14
$\text{Sr}_x\text{La}_{1-x}\text{-TaS}_2$ (60 at% Sr)	64	195	12

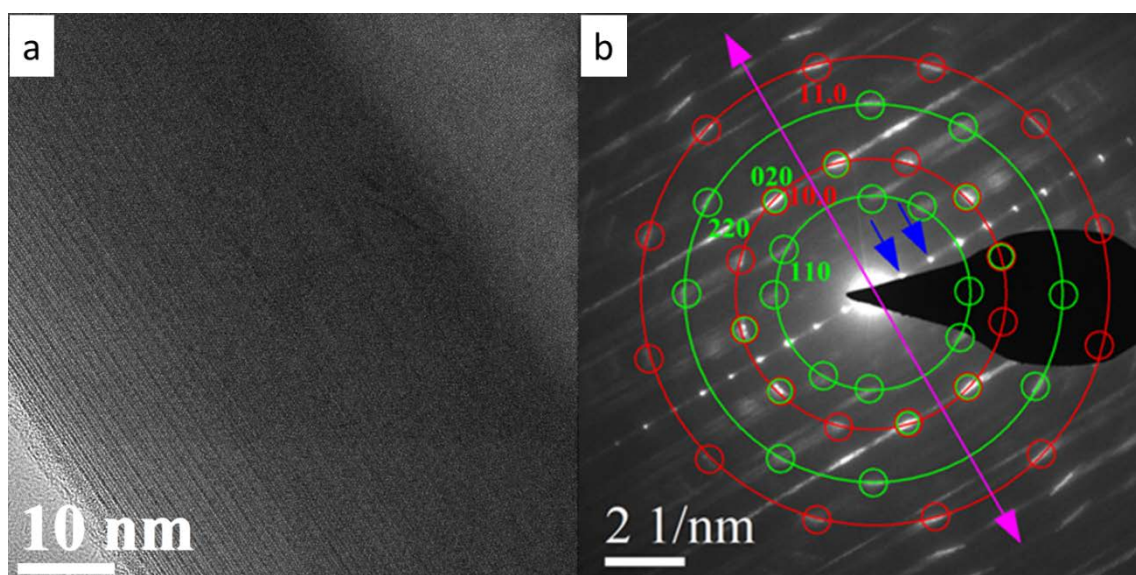


Figure S1. a) HRTEM image of a $\text{Sr}_x\text{La}_{1-x}\text{S-TaS}_2$ (Sr 60 at%) tube, b) Selected area diffraction showing the orientation relationship between $\text{Sr}_x\text{La}_{1-x}\text{S}$ layers (green) and TaS_2 layers (red). The tube axis is shown as pink arrow and the basal reflections are marked with blue arrows.

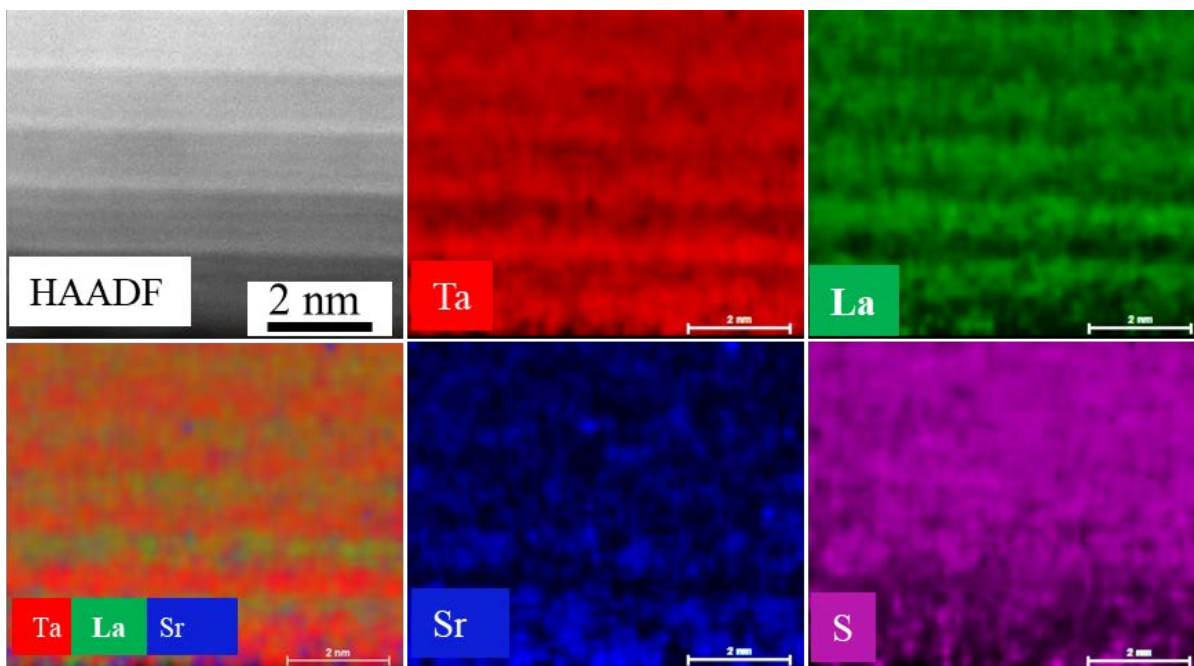


Figure S2. HAADF STEM image and EDX elemental mapping on a $\text{Sr}_x\text{La}_{1-x}\text{S-TaS}_2$ tube synthesized with Sr 60 at% in the precursor.

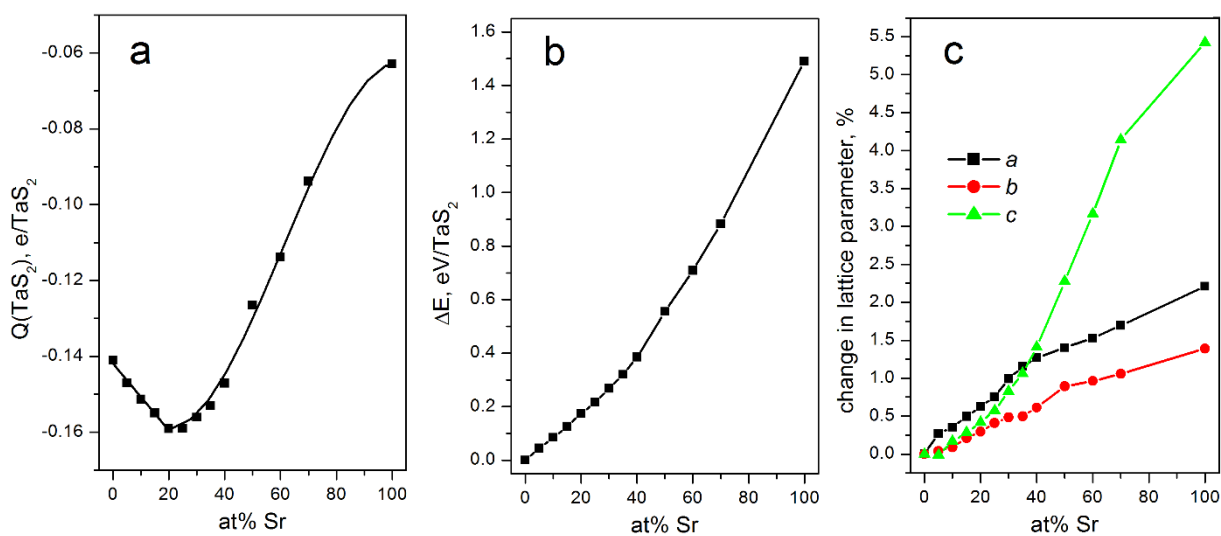


Figure S3. (a) The variations in the amount of charge transfer from $\text{Sr}_x\text{La}_{1-x}\text{S}$ to TaS_2 within $\text{Sr}_x\text{La}_{1-x}\text{S-TaS}_2$ misfits (Q), (b) the relative formation energies (ΔE) and (c) the lattice parameters (a , b , c), depending on the Sr content. DFT calculations.

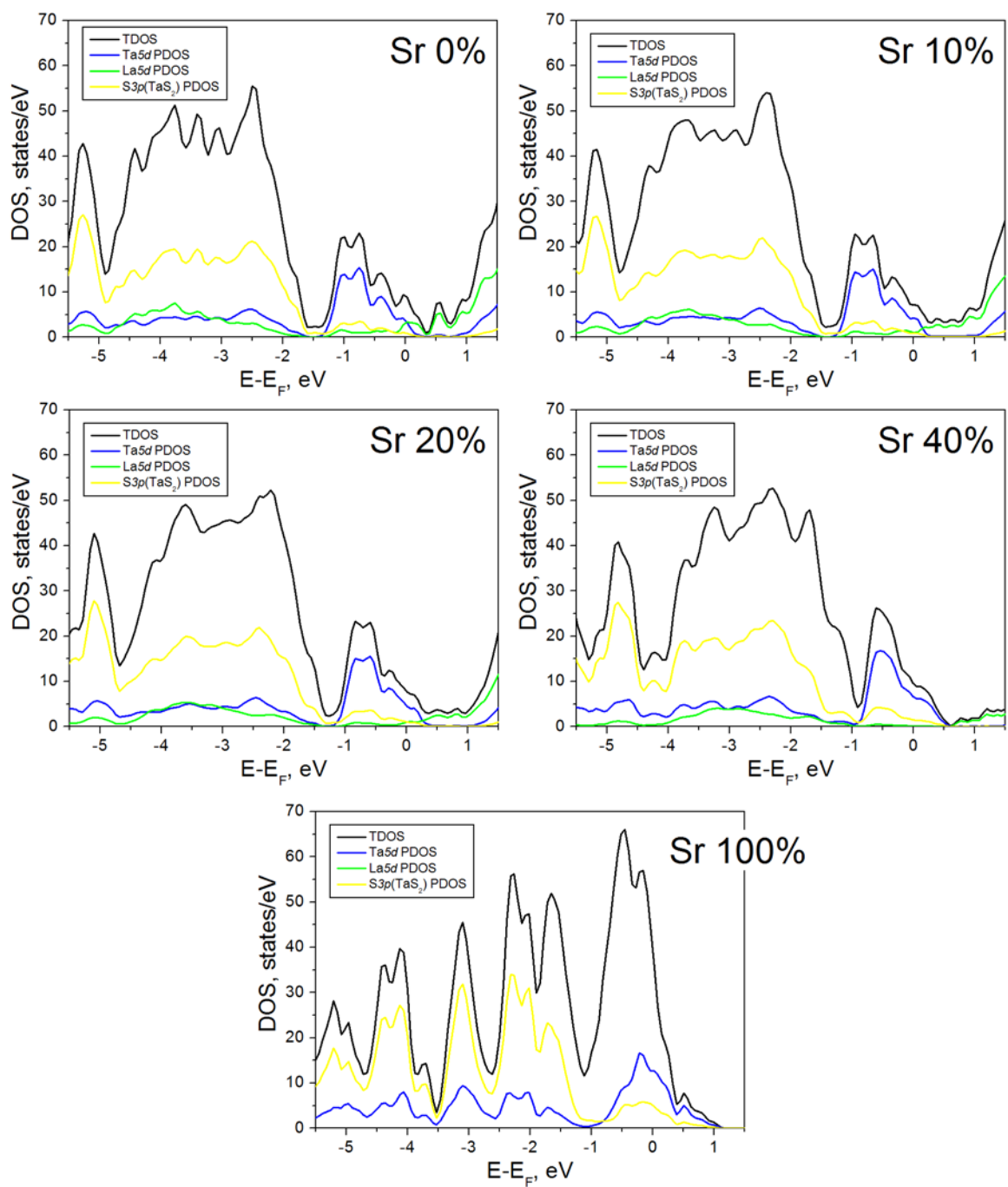


Figure S4. Total and selected partial densities-of-states (DOS) for $\text{Sr}_x\text{La}_{1-x}\text{S-TaS}_2$ misfits with different Sr content. DFT calculations.