

# **Toward the enhancement of thermoelectric properties of lamellar Ca<sub>3</sub>Co<sub>4</sub>O<sub>9</sub> by Spark Plasma Texturing**

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A new configuration of Spark Plasma Sintering-SPS device has been adapted for optimisation of the orientation of lamellar thermoelectric Ca<sub>3</sub>Co<sub>4</sub>O<sub>9</sub> oxides. This configuration, namely “Spark Plasma Texturing-SPT” leads to the free lateral deformation of the bulk material with an enhanced preferred crystallographic orientation between grains compared to the material processed by conventional SPS.

In this work, neutron diffraction measurements were used to investigate the bulk texture of the materials. Thermoelectric properties of textured materials were performed at low and high temperatures along and perpendicular to the orientation field. In addition, anisotropy of mechanical and thermal properties is evidenced for integration of these oxide materials into practical devices.

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