

# **BaTiO<sub>3</sub> ceramics with different grain sizes to control thermal conductivity**

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Control of charge flows led to the invention of the transistor and all related electronic devices of our daily life. In contrast, manipulating heat flows is still a challenge. Yet, heat management is essential in electronic circuits and may lead to the development of a new paradigm of logic (phononics)<sup>1</sup>. A promising material for the control of heat flows is barium titanate (BaTiO<sub>3</sub>) thanks to its ferroelectric domains<sup>2,3</sup>. Here we control the microstructure of our ceramics, from nanograins<sup>4,5,6</sup> obtained by spark plasma sintering to grains of several micrometers obtained by adjusting the sintering time in conventional sintering. Our goal is to achieve a control of the density and mobility of ferroelectric domain walls to compare the thermal conductivity of ceramics with different grain sizes and polarization states.

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