

# KUIC Technology Profile

## Fabrication of Porous Ceramic Films

### Summary:

The invention is a new process that is used to generate pores in ceramic films, such as the ceramic high temperature superconductor films.

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### Overview:

Electrical resistance, in many applications is undesirable. For example in electrical power transmission, electrical resistance causes power dissipation, which grows in proportion to the current in normal wires. It is desirable to fabricate devices, e.g. "superconductors," with little or no resistance. The present invention takes a new approach with superconducting porous films.

### How it works:

The invention describes a method for making porous ceramic superconductors having a film thickness over 0.5 microns. The superconducting material is applied to a vicinal substrate and optionally nanoparticles are inserted to release local strain. The resultant superconductors exhibit improved  $J_c$  values compared to nonvicinal {flat} counterparts and those having no nanoparticles.

Patents: US [7,902,119](#)

Inventor(s): Judy Wu, Rose Emergo, Paul Barnes, Timothy Haugan

Tags: Solar, Nano

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