

## Enhanced Vortex Pinning in Nanostructured YBCO/BZO Coated Conductors from Chemical Solution Deposition

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**Abstract**—We present our latest results on the growth of chemical solution deposited  $\text{YBa}_2\text{Cu}_3\text{O}_7\text{-BaZrO}_3$  nanocomposites on metallic substrates. All chemical  $\text{TFA YBCO-BZO}^{\text{MOD}}/\text{CZO}^{\text{ABAD}}/\text{YSZ/SS}$  tapes with  $J_c(77\text{K, sf}) = 1.7 \text{ MA/cm}^2$  have been achieved with smoother field dependence of  $J_c$  than that of standard  $\text{TFA YBCO}$  tapes. Angular resolved measurements show isotropic enhancement vortex pinning due to the presence of randomly oriented BZO nanoparticles in the YBCO matrix. Chemical routes are thus a promising way to efficiently increase vortex pinning in coated conductor and improve their capabilities for high field applications.

**Index Terms** — Coated conductors, critical current density, nanocomposites, vortex pinning, nanostructured YBCO thin films.

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