

Application aspects of Fe-based superconductors – Prospects for Coated Conductors

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After several years of intense research of the Fe-based superconductor family, especially with regard to basic properties, several lessons can be learned to estimate their potential towards power, magnet or electronic applications.

In this talk I will discuss these issues based on experiments using epitaxially grown thin films and heterostructures of the various families of Fe-based superconductors, as well as based on the actual status of Fe-based superconducting wire and Coated Conductor synthesis.

This will include a short overview of the current status of thin film and wire synthesis of Fe-based superconductors, realized conductor architectures and potential applications.

Critical aspects towards the realization of Fe-based superconductor applications include not only the critical current density, anisotropy, pinning and in-field properties of the different Fe-based superconductors, but also their grain boundary properties, available conductor and film synthesis technologies and their upscaling potential and specific conductor aspects like mechanical properties.

I will discuss some of these aspects especially with respect to Coated Conductor technology and applications.