

Superconducting electric machines review: benefits and challenges

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Abstract

High temperature superconductors offer zero electrical resistance and current densities of more than 500A/mm² at liquid nitrogen temperature. These conductors allow to make breakthrough improvement in efficiency and specific power of electrical machines. A number of demonstrators developed all over the world proved the effect of superconductor implementation. A number of challenges still remain for serial application of superconducting electric machines. Review of superconducting materials and major projects on superconducting motors would be given in the talk.