Hydrokinetic Energy

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Abstract

The energy in flowing river streams, tidal currents or other artificial water channels is being considered as viable source of renewable power. Hydrokinetic conversion systems, albeit mostly at its early stage of development, appear suitable for harnessing energy from such renewable resources. A number of resource quantization and demonstrations have been conducted throughout the world and it is believed that both in-land water resources and offshore ocean energy sector will benefit from this technology. This talk will give an overview of a major new effort on hydrokinetic energy at Missouri S&T. The Missouri S&T project will undertake a comprehensive survey of various hydrokinetic systems reported to date and perform a system level analysis on these emerging systems. This work integrates fundamental analysis and research with development of prototype systems. This integrated approach will lead to a detailed guideline and methodology for design and manufacturing of cost-effective hydrokinetic systems.

Rajiv Mishra is a Curators’ Professor of Metallurgical Engineering in the Department of Materials Science and Engineering at the Missouri S&T. He is also the Missouri S&T Site Director of the NSF I/UCRC for Friction Stir Processing and a Fellow of ASM International. His highest degree is Ph.D. in Metallurgy from the University of Sheffield, UK (1988). He has received a number of awards which include: the Firth Pre-doctoral Fellowship from the University of Sheffield, the Brunton Medal for the best Ph.D. dissertation in the School of Materials from the University of Sheffield in 1988, the Young Metallurgist Award from the Indian Institute of Metals in 1993, Associate of the Indian Academy of Sciences in 1993, the Faculty Excellence Awards from the University of Missouri-Rolla in 2001, 2002, 2003, 2004, 2005, 2006 & 2007. He has authored or co-authored 210 papers in peer-reviewed journals and proceedings and is principal inventor of four U.S. patents. He has co-edited a book on friction stir welding and processing, and edited or co-edited twelve conference proceedings. He is the current chair of the joint commission for Metallurgical and Materials Transactions and serves on the Board of Review. He serves on the editorial board of Science and Technology of Welding and Joining, and Advances in Materials Science and Engineering.