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FTP/P1-06: Analysis of Establishment and MHD Stability of a Free Curve-Surface Flow for Liquid Metal PFCs

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An innovation concept of three layer s guidable liquid metal free curve-surface flow is addressed and its establishment and MHD stability are also analyzed on theoretically Layer I is a basic conduction layer, layer II is a key adjust layer, layer III is the surface layer. To adjust layer I and II in suitable flowing conditions, the MHD effect stability surface layer III can be obtained. In meantime, the layer I and II can be as the heat sink and the coolant flow (it is also suitable to a flat surface flow to avoid rivulet flow). According to Newton's laws and fluid mechanical principles, the analysis results show that an MHD effect stability free curve surface flow can be established under a given curve surface in a gradient magnetic field.

Country or International Organization of Primary Author

China

Primary author: Mr XU, Zengyu (Southwestern Institute of Physics)

Co-authors: Mr PAN, Chuanjie (Southwestern Institute of Physics); Mr ZHANG, Xiujie (Southwestern Institute of Physics); Mr DUAN, Xuru (China); Mr LIU, Yong (Southwestern Institute of Physics)

Presenter: Mr DUAN, Xuru (China)

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