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**Large-scale intermittency of liquid-metal channel flow in a magnetic field** OLEG ZIKANOV, University of Michigan - Dearborn, THOMAS BOECK, DMITRY KRASNOV, ANDRE THESS, Ilmenau University of Technology — We predict a novel flow regime in liquid metals and other electrically conducting fluids under the influence of a magnetic field. It is characterized by long periods of nearly steady, two-dimensional flow interrupted by violent three-dimensional turbulent bursts. Our prediction has been obtained from direct numerical simulations in a channel geometry at low magnetic Reynolds number and translates into physical parameters which are amenable to experimental verification under laboratory conditions. The new regime occurs in a wide range of parameters and may have implications for metallurgical applications and the dynamo problem.

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