

Abstract Submitted
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Magnetic Reconnection Driven by Thermonuclear Burning¹ R. GATTO, Università Roma1 , B. COPPI, MIT — Considering that fusion reaction products (e.g. α -particles) deposit their energy on the electrons, the relevant thermal energy balance equation is characterized by a fusion source term, a relatively large longitudinal thermal conductivity and an appropriate transverse thermal conductivity. Then, looking for modes that are radially localized around rational surfaces [1], reconnected field configurations are found that can be sustained by the electron thermal energy source due to fusion reactions. Then this process can be included in the category of endogenous reconnection processes and may be viewed as a form of the thermonuclear instability that can develop in an ignited inhomogeneous plasma. A complete analysis of the equations supporting the relevant theory is reported.
1. B. Coppi, et al. *Nucl.Fus.***55**, 05311 (2015).

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