Abstract Submitted
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**Tri-dimensional Ribbon Burning Modes in Igniting Plasmas*** B. COPPI, MIT — The fusion burn conditions of magnetically confined plasmas are investigated usually by one- dimensional or 1 +1/2 D codes, when referring to toroidal configurations. This means that the fusion burning process is being described as an axisymmetric and a poloidally symmetric process in a toroidal configuration. On the other hand when the presence of magnetic shear in the considered confinement configuration and the effects of anisotropic thermal conductivities, relative to the confining magnetic field, are taken into account a new kind of thermonuclear instability can be found in plasmas close to ignition conditions [1]. Deuterium-tritium plasmas are considered in particular. The relevant mode involving the growth of electron temperature perturbations is tri-dimensional and radially localized around a given rational magnetic surface. Clearly, the onset and evolution of this kind of "ribbon" modes have to be considered in order to envision and predict how a condition of global ignition [1] can be reached. *Sponsored in part by the U.S. DOE.

[1] B. Coppi, *Comments Pl. Phys. and Cont. Fus.* **3**, 2 (1977).

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