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Angular Momentum Ejection and Transport Equation for the "Spontaneous Rotation" Process* P. NATAF, E.N.S., B. COPPI, M.I.T. — a process of ejection of angular momentum, from the edge of the plasma column [1,2]. This is attributed to modes driven by the local (edge) plasma pressure gradient. The unstable mode associated with the effect of finite resistivity, is characterized by a phase velocity direction that changes from that of the electron diamagnetic velocity [3] to the opposite as the temperature and the electron pressure gradient decrease. The recoil angular momentum is transported towards the center of the plasma plasma column by collectives modes (V.T.G.modes [4]) that the gradient of both the ion temperature and the longitudinal (toroidal) velocity. A smplified angular momentum equation that includes an inflow term associated with the ion temperatue gradient has been employed to reproduce velocity profiles available from current experiments as well as past experiments [5] on rotation induced by neutral beam injection. [1]B. Coppi, *Nucl. Fusion* **42**, 1 (2002) and B. Coppi, Paper IAEA-CN-TH/P1-02, (Lyon, 2002) and MIT-RLE Report PTP02/05 (2002).[2]B. Coppi, *et al.*, Paper IAEA-F1- CN-TH3/7 (Yokohama, 1998). [3]B. Coppi and M.N. Rosenbluth, *Plasma Phys. Control Fus. Res.* **1**, 617 (1966). [4]B. Coppi, *et al.*, Paper 04.017, Proceeding of the 2006- E.P.S. Meeting on Plasma Physics. [5]K. Nagashima, Y. Koide, H. Shirai, *Nucl. Fusion* **34**, 3 (2002). *Supported in part by the U.S. D.O.E.

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