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Novel aspects of linear wave conversion in burning plasmas¹ A. J. BRIZARD, Saint Michael's College, E. R. TRACY, College of William and Mary, A. N. KAUFMAN, LBNL, UC Berkeley — We report on our investigation of several novel aspects of linear wave conversion (a.k.a. mode conversion) in burning plasmas. These include (1) the effects of an inverted population of energetic particles (e.g., fusion products), giving rise to negative-energy modes [1] and, thus, lead to absolute instabilities when counterpropagating rays of opposite energy signs resonantly interact [2]; and (2) the triplication of conversion due to the presence of internal transport barriers (associated with shear-flow layers) overlapping the conversion region.

[1] A. J. Brizard and A. N. Kaufman, Phys. Rev. Lett. **76**, 1639 (1996); Phys. Plasmas **3**, 64 (1996).

[2] A. J. Brizard, J. J. Morehead, A. N. Kaufman, and E. R. Tracy, Phys. Rev. Lett. **77**, 1500 (1996); Phys. Plasmas **5**, 45 (1998).

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