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Interpretation of the nonlinear mode excitation in the ITER gyrotron.[1] OLEKSANDR SINITSYN, GREGORY NUSINOVICH, IREAP, University of Maryland — Recently, the first 170 GHz gyrotron delivering 1 MW continuous-wave power (CW) for the International Thermonuclear Experimental Reactor (ITER) has been developed at the Japan Atomic Energy Agency (JAEA) [K. Sakamoto et al., "Achievement of robust high-efficiency 1 MW oscillation in the hard self-excitation region by a 170 GHz continuous wave gyrotron," Nature Physics, vol. 3, pp. 411- 414, 2007]. In that work the hysteresis phenomenon in excitation of two modes was described. It was found that the operating mode can be excited in the region of hard self-excitation when the parasitic mode is present. The interpretation of this effect is given in the present paper.

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