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**Features of the Kink Mode Structure in Elongated
DIII-D Plasma**¹ I. SEMENOV, P. SAVRUKHIN, A. SUBBOTIN,

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The unusual behavior of large scale MHD-modes was investigated using joint analysis of Mirnov signals, Electron Cyclotron Emission and Soft X-Ray data. In elongated or divertor plasmas, the internal kink-like $n = 1$ precursor associated with sawtooth or fishbone events can excite coupled structures having $m > 1$, with such amplitude and phase relations that cause an apparent reversal of the pitch of the magnetic perturbation (in plasma frame) or of the direction of mode rotation (in laboratory frame) along the inboard wall. In the case of neoclassical tearing modes, when the $m = 3/n = 2$ mode excites coupled modes such as $2/2$ and $5/2$, this phenomenon is absent. Simple analytic calculations and simulations show that in some cases the coupling of the modes $m = 1, 2, 3$ gives a reverse phase shift in a restricted sector of the inboard wall, but in this model it is difficult to obtain reverse phase shift in the sector of 180 degrees from the top to bottom. We have no good theoretical explanation of this experimental observation.

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Prefer Oral Session
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Special instructions: MHD, immediately following AM Popov

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