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# TAKENS-BOGDANOV BIFURCATION IN IFOC SYSTEMS

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**Abstract.** The influence of the normalized load and the rotor time constant mismatch on the dynamical behavior of induction motors under indirect field oriented control (IFOC) is analyzed. We focus the analysis on the Takens-Bogdanov bifurcation using a recent generalization of the Takens-Bogdanov bifurcation Theorem. We have found a criterion that allows us to determine which IFOC systems do not undergo such bifurcation.

**Keywords.** Takens-Bogdanov bifurcation, Bifurcation Theory, Center Manifold Theory, Normal Forms Theory, Indirect Field Oriented Control.

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