



A New Stability Result for the Feedback Interconnection of Negative Imaginary Systems with a Pole at the Origin

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This paper is concerned with stability conditions for the positive feedback interconnection of negative imaginary systems. A generalization of the negative imaginary lemma is derived, which remains true even if the transfer function has poles on the imaginary axis including the origin. A sufficient condition for the internal stability of a feedback interconnection for NI systems including a pole at the origin is given and an illustrative example is presented to support the result.

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