Park, PooGyeon; **Ko, Jeong Wan**; **Jeong, Changki**
Reciprocally convex approach to stability of systems with time-varying delays. (English)
Zbl 1209.93076
Automatica 47, No. 1, 235-238 (2011).

Summary: Whereas the upper bound lemma for matrix cross-product, introduced by Park (1999) and modified by *Y. S. Moon, P. Park, W. H. Kwon* and *Y. S. Lee* [Int. J. Control 74, No. 14, 1447–1455 (2001; Zbl 1023.93055)], plays a key role in guiding various delay-dependent criteria for delayed systems, Jensen's inequality has become an alternative as a way of reducing the number of decision variables. It directly relaxes the integral term of quadratic quantities into the quadratic term of the integral quantities, resulting in a linear combination of positive functions weighted by the inverses of convex parameters. This paper suggests the lower bound lemma for such a combination, which achieves performance behavior identical to approaches based on the integral inequality lemma but with much less decision variables, comparable to those based on Jensen's inequality lemma.

MSC:

93C30	Control/observation systems governed by functional relations other than differential equations (such as hybrid and switching systems)
93D20	Asymptotic stability in control theory
93D99	Stability of control systems

Cited in **1** Review
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Keywords:

reciprocally convex combination; delay systems; stability

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