

TIME DELAY SYSTEMS

Webinar

TDS

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Stability tests based on the delay-Lyapunov matrix



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7:00 am (PDT), 10:00 am (EDT), 10:00 pm (CST)

Event will take place via Zoom

ABSTRACT: Necessary stability conditions expressed in terms of the Lyapunov matrix for time-delay systems are shown to be sufficient via a finite number of operations. The results rely on constructing functionals with prescribed derivatives in the Lyapunov-Krasovskii framework and novel stability/instability theorems. For simplicity, the exposition is made in the single-delay case, followed by the state-of-the-art for other classes of delay systems. The role of the delay-Lyapunov matrix in analysis and control problems is outlined.

BIO: Sabine Mondié received the B.S. degree in industrial engineering from the ITESM, Mexico City, and the M.S. and Ph.D. degrees in electrical engineering from CINVESTAV, Mexico City and IRCyN, Nantes, France, in 1983 and 1996, respectively. She is a professor at the Department of Automatic Control at CINVESTAV, Mexico City, Mexico since 1996. She has been chair for education and is currently vice-chair of the IFAC Technical Committee 2.2. "Linear Control Systems" and has served as Associate Editor for several journals in control, including Systems & Control Letters and European Journal of Control. She is currently associate editor of IEEE Transactions on Automatic Control. Her research work is focused on time-delay systems, their stability and robustness properties, as well as delay applications in engineering and biology. She has directed/co-directed over 15 Ph.D. and 25 master theses and authored/co-authored 75 journal and 125 conference papers.



Questions? Contact: Gabor Orosz, orosz@umich.edu