

Speaker:

Simone Göttlich (Universität Mannheim)

Date:

Monday, 18 October 2021, at 2:00 pm

Title:

Input-to-State Stability of a Scalar Conservation Law with Nonlocal Velocity

Abstract:

We study input-to-state stability (ISS) of an equilibrium for a scalar conservation law with nonlocal velocity and measurement error arising in a highly re-entrant manufacturing system. By using a suitable Lyapunov function, we prove sufficient and necessary conditions on ISS. We propose a numerical discretization of the scalar conservation law with nonlocal velocity and measurement error. A suitable discrete Lyapunov function is analyzed to provide ISS of a discrete equilibrium for the proposed numerical approximation. Finally, we show computational results to validate the theoretical findings.