

Semi-algebraic geometry and semi-definite programming for systems control and signal processing

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Abstract

Semidefinite programming, or optimisation over linear matrix inequalities (LMI), is now a mature research topic in applied mathematics, with several key application areas including systems control and signal processing. During the last decade researchers focused mostly on formulating engineering problems to fit the convex LMI framework (e.g. Lyapunov static state feedback controller design or FIR filter design). Recently, it has been realised that LMIs can also be instrumental to handling non-convex problems, and in particular semialgebraic problems (e.g. finding the solution of a system of multivariate polynomial inequalities). We will survey the latest achievements in the area, with a focus on software development and numerical aspects.

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Venue: Room 112, Division of Engineering, King's College London, Strand,
London WC2R 2LS

Free Admission - All Welcome

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