**Talk: Polynomial optimal control solved with the Lasserre hierarchy**

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**Abstract**: Polynomial optimal control consists of minimizing a polynomial Lagrangian over a polynomial vector field subject to semi-algebraic control and state constraints, a typically nonconvex problem for which there is no solution in classical Lebesgue spaces. To overcome this, polynomial optimal control problems are first formulated as linear programming (LP) problems in the cone of occupation measures (standard objects in Markov decision processes and ergodic theory of dynamical systems), and infinite-dimensional convex duality is used to establish the link with subsolutions of the Hamilton-Jacobi-Bellman partial differential equation satisfied by the value function. Then, the Lasserre hierarchy is applied to solve numerically these infinite-dimensional LP problems. Joint work with Jean Bernard Lasserre, Edouard Pauwels, Christophe Prieur, Emmanuel Trélat, see arXiv:0703377 and also arXiv:1407.1650