ICFO

SEMINAR: Moment polynomials for nonlinear Bell inequalities

VICTOR MAGRON

October 30, 2023
12:00 to 13:00
Seminar Room

Abstract:
This talk is about the algebraic framework of moment polynomials, which are polynomial expressions in commuting variables and their formal mixed moments. Their positivity and optimization over probability measures supported on semialgebraic sets and subject to moment polynomial constraints is investigated. This result gives rise to a converging hierarchy of semidefinite programs for moment polynomial optimization. As an application, two nonlinear Bell inequalities from quantum physics are settled.

Bio: ?

Victor Magron is a junior CNRS researcher at the Laboratoire d'analyse et d'architecture de systemes (LAAS-CNRS), in the department of Decision and Optimization, in Toulouse France. He did a PhD about formal proofs for global optimization at Ecole Polytechniqu , France, funded by INRIA, under the supervision of Benjamin Werner and Stephane Gauber . One of the main purposes was to certify nonlinear inequalities used in the proof of the Kepl r Conjecture by Thomas Hales (Flyspeck Project), completed in 2014. From 2008 and 2010, e trained as a Master student in computer science, funded by the Monbukagakusho, under t e supervision of Shinobu Yoshimura in the Systems Innovation Department of the University f Tokyo. In 2014, he was a Postdoc in the Methods and Algorithms for Control (MAC) team fr m LAAS-CNRS under the supervision of Didier Henrion and Jean-Bernard Lasserre. In 2014-201 , he was a Research Associate in the Circuits and Systems group at Imperial College, n collaboration with George A. Constantinides and Alastair Donaldson. From 2015 to 2018, e was a CNRS junior researcher affiliated to VERIMAG in Grenoble. In 2019, he was affiliated o LAAS-CNRS, in the MAC team, located in Toulouse. He has been also associated research r to the Institute of Mathematics from Toulouse since 2020. Since 2022 he has taken the le d of a new team in LAAS focusing on polynomial and moment optimization, called POP.

Hosted by: Antonio Acin