Séminaire de mathématiques et leurs applications

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Titre: Orthogonal and unitary tensor decomposition from an algebraic .perspective

Résumé: While every matrix admits a singular value decomposition, in which the terms are pairwise orthogonal in a strong sense, higher-order tensors typically do not admit such an orthogonal decomposition. In this talk I will present an intrinsic characterization of those tensors that do, by means of polynomial equations of degree at most four. The exact degrees, and the corresponding polynomials, are different in each of three times two scenarios: ordinary, symmetric, or alternating tensors; and real-orthogonal versus complex-unitary. This is a joint project with J. Draisma, E. Horobet, and E. Robeva.