1116-14-653   **Ada Boralevi**, **Jan Draisma*** (`j.draisma@tue.nl`), **Emil Horobeţ** and **Elina Robeva**.
Unitarily decomposable tensors.

The singular value decomposition shows that a complex matrix can be written, almost uniquely, as a sum of rank-one matrices of which the column spaces are pairwise orthogonal relative to a Hermitian form, and likewise for the row spaces. Higher-order tensors do not, in general, admit such a decomposition. In this talk I will present an intrinsic characterisation, by means of polynomial equations, of those tensors that do. I will do so in the three realms of ordinary, symmetric, and skew-symmetric tensors. Such unitarily decomposable tensors and their real-orthogonal counterparts appear in various applications, such as topic models in machine learning. (Received September 10, 2015)