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Elina M Robeva* (erobeva@gmail.com). *Orthogonal Tensor Decomposition.*

Orthogonal tensor decomposition has recently been used in finding the parameters of certain latent variable models. It is a type of symmetric tensor decomposition in which one expresses a given $\underbrace{n \times n \times \cdots \times n}_{d \text{ times}}$ tensor T as $T = v_1^{\otimes d} + \cdots + v_k^{\otimes d}$,

where the vectors v_1, \dots, v_k are pairwise orthogonal. We give equations defining the variety of orthogonally decomposable tensors. If $T = v_1^{\otimes d} + \cdots + v_k^{\otimes d}$ is orthogonally decomposable, it is easy to see that v_1, \dots, v_k are eigenvectors of T . We give a formula for the remaining eigenvectors of T in terms of the special ones v_1, \dots, v_k . (Received August 29, 2014)