1145-05-1909   **Sören Berg**, **Katharina Jochemko** and **Laura Silverstein***
(`laura.silverstein@tuwien.ac.at`), 39 E 12th Street #811, New York, NY 10003. *Ehrhart Tensor Polynomials.*

Ehrhart tensor polynomials, a natural generalization of the Ehrhart polynomial of a lattice polytope, were introduced in a joint paper with Monika Ludwig. Here we investigate their coefficients and give Pick-type formulas, for the vector and matrix cases, in terms of triangulations of the given lattice polygon. The notion of the Ehrhart h^*-polynomial is extended to h^r-tensor polynomials and, for matrices, their coefficients are studied for positive semidefiniteness. In contrast to the classic h^*-polynomial, the coefficients are not necessarily monotone with respect to inclusion. Positive semidefiniteness is still proven in dimension two and, based on computational results, conjectured in higher dimensions. This work was done jointly with Sören Berg (TU Berlin) and Katharina Jochemko (KTH Stockholm). (Received September 24, 2018)

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