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Hardy-Sobolev, log-Sobolev and Moser-Onofri-Beckner inequalities with monomial weights.

Recently, there have been increasing interests in studying geometric inequalities with monomial weights.

In this talk, we give some improved functional and geometric inequalities in the presence of both monomial and radial weights, where monomial weights is defined by $|x|^A = |x_1|^{A_1} \cdots |x_n|^{A_n}$. In particular, I will start from Hardy-Sobolev inequality, and then establish log-Sobolev inequality and derive the general Moser-Onofri-Beckner inequality with monomial weights. (Received December 21, 2020)