The Gaussian Capacities

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Abstract   In this talk, we introduce and study the Sobolev space and the related Gaussian p-capacity in the Gaussian space, namely, the Euclidean space with the Gaussian measure. We obtain a characterization of the Gaussian-Sobolev inequality (Sobolev embedding) in this setting via the isocapacity inequality. Moreover, a geometric characterization of either the Gaussian 1-capacity or the Gaussian Poincare 1-inequality is also discovered.