Minimal energy problem on the sphere, equilibrium support, and quadrature domains

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Abstract: We consider the minimal logarithmic energy problem on the unit sphere in the presence of external field exerted by finitely many point masses. For relatively weak mass charges the equilibrium support is obtained by removing perfect spherical caps centered at the points. We shall characterize the equilibrium support beyond such interactions and obtain a remarkable connection with quadrature domains in the complex plane. This is joint work with Alan Legg.