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Equilibria of point-vortices on closed surfaces

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Abstract. We discuss the existence of equilibrium configurations for the Hamiltonian point-vortex model on a closed surface Σ. The topological properties of Σ determine the occurrence of three distinct situations, corresponding to $\mathbb{S}^2$, to $\mathbb{RP}^2$ and to $\Sigma \neq \mathbb{S}^2, \mathbb{RP}^2$. As a by-product, we also obtain new existence results for the singular mean-field equation with exponential nonlinearity.

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