

# Concentration of conformal volume and variational theory for some geometric PDEs

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We consider a class of problems arising in conformal geometry (as the Q-curvature prescription) or in mathematical physics (self-dual Chern-Simons equations). We derive existence results using variational theory and suitable improvements of the Moser-Trudinger inequality. In particular, we analyze the concentration behavior of the conformal volume on metrics for which the Euler-Lagrange functional loses coercivity.