NON-LOCAL ODES IN CONFORMAL GEOMETRY

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When one looks for radial solutions of an equation with fractional Laplacian, it is not generally possible to use classical ODE methods. If such equation has some conformal invariances, one may rewrite it in Emden-Fowler (cylindrical) coordinates and use the properties of the conformal fractional Laplacian on the cylinder. Then it is possible to apply complex variable methods in order to obtain existence and regularity for such equation. A particular application is the study of fractional Laplacian equations with drift and a critical Hardy potential (joint work with H. Chan, M. Fontelos and J. Wei).

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