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Existence of positive solutions with a prescribed singular set of fractional Yamabe Problem

In this paper, we consider the problem of the existence of positive solutions with prescribed isolated singularities of

$$\begin{cases} (-\Delta)^s u = u^{\frac{n+2s}{n-2s}} & \text{in } R^n \\ u(x) \rightarrow \infty & \text{as } x \rightarrow \Sigma \end{cases}$$

where Σ is a set of discrete points in R^n . Near each singular point, these solutions are approximated by the Delaunay-type singular solution which has been studied recently by De la Torre, Del Pino, Mar Gonzalez and J.C. Wei. Away from the singular points, these solutions are approximated by the summation of the Green's function. This result is the analogous result for the classical Yamabe problem studied by Mazzeo and Pacard (1999). This is a joint work with De la Torre, Mar Gonzalez and J.C. Wei.