

Radial entire solutions for supercritical biharmonic equations*

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Abstract

We prove existence and uniqueness (up to rescaling) of positive radial entire solutions of supercritical semilinear biharmonic equations. The proof is performed with a shooting method which uses the value of the second derivative at the origin as a parameter. This method also enables us to find finite time blow up solutions. Finally, we study the convergence at infinity of regular solutions towards the explicitly known singular solution. It turns out that the convergence is different in space dimensions $n \leq 12$ and $n \geq 13$.

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