

EXISTENCE OF NON-RADIALLY SYMMETRIC VISCOSITY SOLUTIONS TO SEMILINEAR DEGENERATE ELLIPTIC EQUATIONS WITH RADIALLY SYMMETRIC COEFFICIENTS IN THE PLANE, PART II

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Abstract. We study continuous viscosity solutions for a semilinear degenerate elliptic equation with radially symmetric coefficients in the plane. If the equation satisfies certain relations with respect to the behavior of coefficients at the infinity, then it is known that there exist many solutions. Our purpose is to construct many non radially symmetric solutions satisfying the similar behavior with radial symmetric solutions at the infinity. The solutions are obtained as a small perturbation from a radially symmetric solution. We construct super- and sub-solution by using the series expansion of $r^{\alpha-j\beta} \cos n\theta$ ($j, n = 1, 2, \dots$), where (r, θ) is the polar coordinate and α and β are certain positive constants.

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