Non-Local Degenerate Diffusion Coefficients Break Down the Components of Positive Solutions

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Abstract. This work deals with nonlinear elliptic problems where the diffusion coefficient is a degenerate non-local term. We show that this degeneration implies the growth of the complexity of the structure of the set of positive solutions of the equation. Specifically, when the reaction term is of logistic type, the continuum of positive solutions breaks into two disjoint pieces. Our approach uses mainly fixed point arguments.