Flat and Compact Support Solutions to some Semilinear Elliptic Problems with Non-Lipschitz Nonlinearities

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SUMMARY

We give a general overview of some recent results concerning existence and properties of non-negative solutions to some semilinear elliptic boundary value problems. These problems may exhibit smooth positive solutions but also positive solutions with zero normal derivative(?flat? solutions) and compact support solutions. We study in particular these flat solutions with emphasis on its stability properties. It turns out that in some cases the stability depends on the space dimension.

This is joint work with J.I. Daz and Y. Ilyasov.

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