

A-PRIORI BOUNDS FOR SOLUTIONS TO SOME CLASSES OF ELLIPTIC PROBLEMS

The Moser iteration technique is a powerful and widely employed tool to show the L^∞ -bound of solutions to nonlinear partial differential equations. In this talk I will present how this technique can be applied to some classes of elliptic problems. More precisely, in the first part I will consider a nonlinear boundary value problem in a bounded domain $\Omega \subset \mathbb{R}^N$ where the operators exhibit critical growth even on the boundary, while in the second part I will focus on a system of singular quasilinear equations defined on the whole space \mathbb{R}^N . For both of these problems I will show that every weak solution is actually L^∞ . In the framework of the singular system I will also show the existence of at least one weak solution via the Schauder's fixed point theorem.

This talk is based on the works [1]-[3].

REFERENCES

- [1] S.A. Marano, G. Marino, and A. Moussaoui, *Singular quasilinear elliptic systems in \mathbb{R}^N* , Ann. Math. Pura Appl. (4) **198** (2019), no. 5, 1581–1594.
- [2] G. Marino and P. Winkert, *Moser iteration applied to elliptic equations with critical growth on the boundary*, Nonlinear Anal. **180** 2019, 154–169.
- [3] G. Marino and P. Winkert, *Global a priori bounds for weak solutions of quasilinear elliptic systems with nonlinear boundary condition*, J. Math. Anal. Appl. **482** (2020), no. 2, to appear.