# SEMINÁRIO DE EQUAÇÕES DIFERENCIAIS

## Boundary Sobolev regularity for nonlinear elliptic equations: an asymptotic approach

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**Resumo:** In this talk, we examine boundary Sobolev regularity for solutions of fully nonlinear elliptic equations. In particular, we prove that solutions to

$$F(D^2) = f(x) \quad \text{in} \quad B_1^+$$

have $W^{2,p}(\overline{B}_{1/2})$-estimates, under minimal, asymptotic, assumptions on the governing operator. We reason through methods and techniques from the realm of Geometric Tangential Analysis; typically, it consists in connecting our problem of interest with an additional, auxiliary one, and transport information from the latter to the former, along certain path. In our concrete case, we recur to the notion of *recession function*. Given a $(\lambda, \Lambda)$-elliptic operator $F$, its recession function is formally defined as $\infty^{-1}F(\infty M)$. A priori regularity for solutions of the equation governed by $F^*$ builds upon standard measure-theoretical facts, to yield our main result. This is based on joint work with A. Bronzi and O. Queiroz (IMECC-UNICAMP).