

CMM PDE Seminar

Speaker: Jefferson Abrantes (Universidade Federal de Campina Grande, Brasil)

Title: Optimal design problems for a degenerate operator in Orlicz-Sobolev spaces

Abstract: An optimization problem with volume constraint involving the Φ -Laplacian in Orlicz-Sobolev spaces is considered for the case where Φ does not satisfy the natural condition introduced by Lieberman. A minimizer u_Φ having non-degeneracy at the free boundary is proved to exist and some important consequences are established like the Lipschitz regularity of u_Φ along the free boundary, that the set $\{u_\Phi > 0\}$ has uniform positive density, that the free boundary is porous with porosity $\delta > 0$ and has finite $(N-\delta)$ -Hausdorff measure. Under a geometric compatibility condition set up by Rossi and Teixeira, it is established the behavior of a ℓ -quasilinear optimal design problem with volume constraint for ℓ small. As $\ell \rightarrow 0+$, we obtain a limiting free boundary problem driven by the infinity-Laplacian operator and find the optimal shape for the limiting problem. The proof is based on a penalization technique and a truncated minimization problem in terms of the Taylor polynomial of u_Φ .

Modalidad: presencial en la sala de seminarios del DIM piso 5 o bien online vía zoom:

<https://uchile.zoom.us/j/81800846925?pwd=T0krYUE0YkhNbnFPN2prUGNpUU9kZz09>

Meeting ID: 818 0084 6925, Passcode: 939730

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página <https://eventos.cmm.uchile.cl/pdeseminar/>

April 26, 2022 at 12

