

Free Boundary Problems in PDEs and Related Issues

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Título: A Hessian-dependent functional with free boundaries and application to mean-field games

Resumo: We study a Hessian-dependent functional driven by a fully nonlinear operator. The associated Euler-Lagrange equation is a fully nonlinear mean-field game with free boundaries. Our findings include the existence of solutions to the mean-field game, together with Hölder continuity of the value function and improved integrability of the density. In addition, we prove the reduced free boundary is a set of finite perimeter. To conclude our analysis, we prove a Γ -convergence result for the functional.