Optimal regularity for a two-phase free boundary problem ruled by the infinity Laplacian

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We consider a non-variational two-phase free boundary problem ruled by the infinity Laplacian. Our main result is that normalized viscosity solutions in B_1 are universally Lipschitz continuous in $B_{1/2}$, which is the optimal regularity for the problem. We make a new use of the Ishii-Lions' method, which works as a surrogate for the lack of a monotonicity formula and is bound to be applicable in related problems.

This is a joint work with D.J. Araújo (Universidade Federal da Paraíba, João Pessoa, Brazil) and E.V. Teixeira (University of Central Florida, Orlando, USA).

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