

An optimization problem for the fractional Laplacian with a volume constraint and a lower temperature bound

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We consider a free boundary optimization problem for the fractional Laplacian with a volume constraint and a lower temperature bound. We prove the existence and the optimal regularity of solutions. Moreover, two natural free boundaries arise in our problem. So, we provide not only geometric properties of solutions, but also of the corresponding exterior and interior free boundaries. This is a joint work with V. Nersesyan (Université Paris-Saclay) and R. Teymurazyan (University of Coimbra).