

AN OPTIMIZATION PROBLEM WITH VOLUME CONSTRAINT FOR AN INHOMOGENEOUS
OPERATOR WITH NONSTANDARD GROWTH

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We will present recent results on an optimization problem with volume constraint for an energy functional associated to an inhomogeneous operator with nonstandard growth. By studying an auxiliary penalized problem, we prove existence and regularity of solution to the original problem: every optimal configuration is a solution to a one phase free boundary problem, for an operator with nonstandard growth and non-zero right hand side, and the free boundary is a smooth surface.