# (NON)UNIQUENESS OF MINIMIZERS IN LEAST GRADIENT PROBLEM

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The least gradient problem, which is related to conductivity imaging in medical scans and to free material design models, is a variational problem of the form

$$\min\{\int_\Omega |Du| : \quad u \in BV(\Omega), \quad Tu = f\},$$

where $f \in L^1(\Omega)$ and $T$ denotes the trace operator. It is well known that for continuous boundary data the solution exists and is continuous up to the boundary. Here, we focus on the two-dimensional case and extend the class of functions for which the solution exists to $BV(\partial\Omega)$ and discuss how the set of minimizers looks like. However for discontinuous $f$ uniqueness of solutions may fail, it turns out that the structure of superlevel sets of all minimizers is very similar and we may characterize all of them.

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