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Elliptic boundary value problems in domains with non-Lipschitz singular points

We consider elliptic boundary value problems in a domain $G \subset \mathbf{R}^n$ with a finite set of singular points on the boundary. The class of singularities we allow includes: whirl points, in which case the tangent cone does not exist and the boundary oscillates and rotates close to the point; oscillating cusp points, in which case the tangent cone degenerates, cusp-like whirl points, in which case we have an intricate combination of the singularities of first two types.

We give the necessary and sufficient conditions for the boundary value problems in such domains to be Fredholm and, also, we give estimates of solutions near singular points. Part of these results is joint work with B. -W. Schulze and N. N. Tarkhanov.