

**Nazarov, Sergey A.; Plamenevsky, Boris A.**

**Elliptic problems in domains with piecewise smooth boundaries.** (English) Zbl 0806.35001  
*De Gruyter Expositions in Mathematics*. 13. Berlin: de Gruyter. vii, 525 p. (1994).

This book deals with elliptic boundary value problems in domains with nonregular boundary which may include conical points, edges or may be unbounded. The solvability of boundary value problems is studied and the asymptotic formulae for solutions near the singular points on the boundary are obtained. The authors present the general theory of elliptic boundary value problems in a cylinder and in a cone. Problems in domains with smooth edges and on manifolds with intersecting edges are considered. Radiation conditions are analyzed for boundary value problems in domains with outlets to infinity. Applications in solid mechanics and fracture phenomena are discussed.

The Russian original was published by Nauka (Moscow) in 1991.

Reviewer: [A. Movchan \(Bath\)](#)

**MSC:**

- [35-02](#) Research exposition (monographs, survey articles) pertaining to partial differential equations
- [35J25](#) Boundary value problems for second-order elliptic equations
- [35C20](#) Asymptotic expansions of solutions to PDEs
- [74R99](#) Fracture and damage
- [35A20](#) Analyticity in context of PDEs
- [35B40](#) Asymptotic behavior of solutions to PDEs
- [35Jxx](#) Elliptic equations and elliptic systems
- [78A25](#) Electromagnetic theory, general

Cited in **2** Reviews  
Cited in **276** Documents

**Keywords:**

[radiation conditions](#); [conical points](#); [edges](#); [singular points on the boundary](#)