Elliptic Problems in Smooth and Non Smooth Domains

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Résumé

We are interested here in questions related to the **regularity** of solutions of **elliptic** problems with **Dirichlet** or **Neumann** boundary condition. For the last 30 years, many works have been concerned with questions when Ω is a **Lipschitz domain**.

We give here some complements for the case of the **Laplacian**, the **Bilaplacian** and the operator div $(\mathbf{A}\nabla)$, when $\mathbf{A}$ is a matrix or a function, and we extend this study to obtain other regularity results for domains having an adequate regularity.

Using the duality method, we will then revisit the work of Lions-Magenes, concerning the so-called **very weak solutions**, when the data are less regular. Thanks to the **interpolation theory**, it permits us to extend the classes of solutions and then to obtain new results of regularity.

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