Stability estimates in H_0^1 for solutions of elliptic equations in varying domains

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We consider second-order uniformly elliptic operators subject to Dirichlet boundary conditions on two bounded domains Ω and $\phi(\Omega)$. We consider the solutions u and $\tilde{u}$ of the corresponding elliptic equations with the same right-hand side $f \in L^2(\Omega \cup \phi(\Omega))$. Under certain additional assumptions we estimate the norm $\|\nabla \tilde{u} - \nabla u\|_{L^2(\Omega \cup \phi(\Omega))}$ in terms of the Lebesgue measure $|\phi(\Omega) \triangle \Omega|$.

Joint work with Josè Arrieta.