1057-35-298 **Justin Lee Taylor*** (`jtaylor2@ms.uky.edu`). *The Dirichlet Eigenvalue Problem for Elliptic Systems on Perturbed Domains.*

We consider the Dirichlet eigenvalues of an elliptic operator

$$(A_\varepsilon u)^\beta = \sum_{i,j,\alpha} -\frac{\partial}{\partial x_j}\left(a_{ij}^{\alpha\beta}\frac{\partial u^\alpha}{\partial x_i}\right) \qquad \beta = 1, ..., m$$

where $u = (u^1, ..., u^m)^t$ is a vector valued function and $a^{\alpha\beta}(x)$ are $(n \times n)$ matrices whose elements $a_{ij}^{\alpha\beta}(x)$ are at least uniformly bounded measurable real-valued functions such that

$$a_{ij}^{\alpha\beta}(x) = a_{ji}^{\beta\alpha}(x)$$

for any combination of α, β, i, and j. If we have two non-empty, open, disjoint, and bounded sets, Ω and $\widetilde{\Omega}$, in $\mathbb{R}^n$, and add a set T_ε of small measure to form the domain $\Omega_\varepsilon = \Omega \cup \widetilde{\Omega} \cup T_\varepsilon$, then we show that as $\varepsilon \to 0^+$, the Dirichlet eigenvalues corresponding to the family of domains $\{\Omega_\varepsilon\}_{\varepsilon>0}$ converge to the Dirichlet eigenvalues corresponding to $\Omega_0 = \Omega \cup \widetilde{\Omega}$. In this paper, we consider the Lamé system or systems which satisfy a strong ellipticity condition or a Legendre-Hadamard ellipticity condition. (Received January 25, 2010)