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**Anna L Mazzucato\*** ([alm24@psu.edu](mailto:alm24@psu.edu)), Department of Mathematics, Penn State University, University Park, PA 16802, and **Victor Nistor**, Department of Mathematics, Penn State University. *Well-posedness and regularity for anisotropic elasticity with mixed boundary conditions in "domains with polyhedral structure"*.

We discuss well-posedness and regularity of strongly elliptic systems, in particular the system of anisotropic elasticity, with mixed Dirichlet-Neumann boundary conditions on singular domains. These domains are more general than curved polyhedral domains and allow for cracks and vertices that touch a smooth face. We employ certain weighted Sobolev spaces and partition of unity. (Received January 07, 2007)