

1125-35-2031

**Justin L Taylor\*** (jtaylor52@murraystate.edu), **Russell M Brown** and **Seick Kim**. *The Heat Kernel for Systems of Linear Elasticity*.

We consider the elliptic system of linear elasticity with bounded measurable coefficients in a domain where the second Korn inequality holds. We construct the heat kernel of the system subject to mixed boundary conditions under the assumption that weak solutions of the elliptic system are Hölder continuous in the interior. Moreover, we show that if weak solutions of the mixed problem are Hölder continuous up to the boundary, then the corresponding heat kernel has a Gaussian bound. As an application, we construct the Green's function for the elliptic mixed problem. (Received September 19, 2016)