1135-26-3081 **Fernando Lopez-Garcia*** (fal@cpp.edu). *Orthogonal decomposition of functions and applications.*

Sobolev spaces are fundamental to study the existence and uniqueness of variational solutions of differential equations. In particular, the validity of the so-called Korn inequality, which is strongly related to the geometry of the domain where the functions are defined, is basic in the analysis of the linear elasticity equations. In this talk, we will describe a local-to-global technique to transfer the validity of certain Korn type inequalities from cubes to more general domains (John domains). This technique is based on the possibility of decomposing an arbitrary function f, orthogonal to the Kernel of the linearized strain tensor, into the sum of a collection of functions, with the same property, supported on Whitney cubes. (Received September 26, 2017)