Weighted Hardy-Sobolev inequality and global existence result of thermoelastic system on manifolds with corner-edge singularities

Morteza Koozehgar Kalleji[1]

[1]Arak University

May 6, 2020

Abstract

This article concerns with the thermoelastic corner-edge type system with singular potential function on a wedge manifold with corner singularities. First, we introduce weighted $p-$Sobolev spaces on manifolds with corner-edge singularities. Then, we prove the corner-edge type Sobolev inequality , Poincar$\acute{e}$ inequality and Hardy inequality and obtain some results about the compactness of embedding maps on the weighted corner-edge Sobolev spaces. Finally, as an application of these results, we apply the potential well theory and the Faedo-Galerkin approximations to obtain the global weak solutions for the thermoelastic corner-edge type system.

Hosted file

`corner-edge singularity.pdf` available at https://authorea.com/users/317348/articles/447451-weighted-hardy-sobolev-inequality-and-global-existence-result-of-thermoelastic-system-on-manifolds-with-corner-edge-singularities