

عنوان مقاله:

Thermopiezoelastic Stress Analysis of Rotating Thin Disk Under Hygrothermal Loading

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نویسندگان:

Fariborz Heidary - Assistant Professor, Department of Mechanical Engineering, A.H. Rafsanjani Complex, Central Tehran Branch - Islamic Azad University, Tehran, Iran

Reza Sallakhniknezhad - Department of Mechanical Engineering, A.H. Rafsanjani Complex, Central Tehran Branch - Islamic Azad University, Tehran, Iran

خلاصه مقاله:

In this paper, the thermopiezoelectric responses of a radially two layered hollow rotating disk subjected to hygrothermal loading are obtained by a straightforward analytical method considering the boundary conditions of the symmetrical disk. Substituting these relations in the mechanical equilibrium equations and electric displacement, lead ultimately to provision of a system of coupled second-order ordinary differential equations in terms of displacement, electric potential and thermal stresses are solved exactly by the successive decoupling method. Using these differential equations, physical characteristics including displacement, temperature, moisture, electric potential and distributions of radial and circumferential stresses are investigated graphically for a range of two layered rotating disk. Numerical results are shown to clarify the effects of hygrothermal loading for temperature and moisture dependence on the pyroelectric effect of the behavior of the rotating disk

کلمات کلیدی:

Thermopiezoelastic Stress, Hygrothermal Loading, Rotating Disk, Pyroelectric Effect

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