

عنوان مقاله:

Deflection Study of Circular Auxetic Thin Plate Under Static Loading

محل انتشار:

کنفرانس دو سالانه بین المللی مکانیک جامدات تجربی (سال: 1398)

تعداد صفحات اصل مقاله: 2

نویسندگان:

M. J. Khoshgoftar - Assistant Professor Department of Mechanical Engineering, Faculty of Engineering, Arak University, Arak ۳۸۱۵۶-۸۸۳۴۹, Iran

A Barkhordari - MSc. Student Department of Mechanical Engineering, Faculty of Engineering, Arak University, Arak ۳۸۱۵۶-۸۸۳۴۹, Iran

خلاصه مقاله:

Auxetic materials are comprehensive materials with a negative Poisson's ratio. They tend to thicken when applied to vertical tensile stresses, as opposed to conventional materials, perpendicular to the applied force. Currently, available results for the deflection of circular isotropic thin plates are valid for a limited positive Poisson's ratio. In this paper, the deflection of isotropic circular thin plates under static loading and clamp boundary conditions is investigated by the semi-empirical method and in addition to positive Poisson's ratio, Negative Poisson's ratio (Auxetic material) is examined. The results show with increasing negative Poisson's ratio, the deflection of thin plate increases. Also, the auxetic plate has about two times more deflection than the conventional plate. Auxetic materials can be used in defense, biomedical and sports industries

کلمات کلیدی:

Auxetic materials, Thin plate, Deflection, Conventional, Semi-empirical method

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/999870>

