

[Download](#)[Export](#)

## Applied Mathematics Letters

Volume 26, Issue 2, February 2013, Pages 232-239

# A GN model for thermoelastic interaction in an unbounded fiber-reinforced anisotropic medium with a circular hole

Ibrahim A. Abbas  

 [Show more](#)

<https://doi.org/10.1016/j.aml.2012.09.001>

[Get rights and content](#)

Under an Elsevier [user license](#)

[open archive](#)

### Abstract

In this work, we have constructed the equations for generalized thermoelasticity of an unbounded fiber-reinforced anisotropic medium with a circular hole. The formulation is applied in the context of Green and Naghdi (GN) theory. The thermoelastic interactions are caused by (I) a uniform step in stress applied to the boundary of the hole with zero temperature change and (II) a uniform step in temperature applied to the boundary of the hole which is stress-free. The solutions for displacement, temperature and stresses are obtained with the help of the finite element procedure. The effects of the reinforcement on temperature, stress and displacement are studied. Results obtained in this work can be used for designing various fiber-reinforced anisotropic elements under mechanical or thermal load to meet special engineering requirements.



Previous

Next



### Keywords

Green and Naghdi theory; Fiber-reinforced; Finite element method

Loading...

[Recommended articles](#)

[Citing articles \(0\)](#)

Copyright © 2012 Elsevier Ltd. All rights reserved.

---

**ELSEVIER**

[About ScienceDirect](#) [Remote access](#) [Shopping cart](#) [Contact and support](#)  
[Terms and conditions](#) [Privacy policy](#)

We use cookies to help provide and enhance our service and tailor content and ads. By continuing you agree to the [use of cookies](#).

Copyright © 2018 Elsevier B.V. or its licensors or contributors. ScienceDirect® is a registered trademark of Elsevier B.V.

 **RELX** Group™