地球物理学报 » 2009, Vol. 52 » Issue (9) :2345-2348 doi:10.3969/j.issn.0001-5733.2009.09.019

引用本文(Citation):
姚陈;蔡明刚.任意空间取向TI弹性张量解析表述. 地球物理学报, 2009,52(9): 2345-2348,doi: 10.3969/j.issn.0001-5733.2009.09.019

YAO Chen;CAI Ming-Gang.Analytical expression of TI elastic tensor with arbitrary orientation.Chinese J.Geophys. (in Chinese),2009,52(9): 2345-2348,doi: 10.3969/j.issn.0001-5733.2009.09.019

任意空间取向TI弹性张量解析表述

姚陈;蔡明刚*

中国地震局地质研究所, 北京 100029

Analytical expression of TI elastic tensor with arbitrary orientation

YAO Chen; CAI Ming-Gang*

Institute of Geology，China Earthquake Administration，Beijing 100029，China

摘要 | 参考文献 | 相关文章

Download: PDF (313KB) HTML 0KB Export: BibTeX or EndNote (RIS) Supporting Info

摘要 本文理论给出任意空间取向TI(ATI)四阶弹性张量的解析表述,其以VTI弹性常数及其简单组合为系数,包括各向同性项、TI对称轴方向矢量分量的二次项和四次项,其中TI对称轴方向矢量可以在固定坐标系定义, 也可以相对三维倾斜界面甚至相对波传播方向.相比四阶张量变换法和Bond变换法,ATI弹性张量能简洁而透明地为本构关系和波动方程提供四阶张量的所有元素. ATI弹性张量能为诸多方面的理论研究提供支撑.

关键词 四阶张量变换, Bond变换, ATI弹性张量, TI对称轴方向矢量

Abstract: In this paper the analytical expression for elastic tensor of TI with arbitrary orientation (ATI) is given that has coefficients as combination of elastic constants of VTI and includes isotropic term, quadratic and fourth-order terms of the direction vector components of TI symmetry axis. Such direction vector of TI symmetry axis could be defined in the fixed coordinates, can also be relative to three dimensional boundaries of the media and even to wave propagation direction. In comparison with fourth order tensor transformation and Bond transformation, ATI elastic tensor can provide all its components in the constitutive relation and wave motion equation concisely and transparently for theoretical investigation in many aspects.

Keywords Fourth order tensor transformation, Bond transformation, ATI elastic tensor, Direction vector for TI symmetry axis

Received 2009-01-04;

Service
把本文推荐给朋友
加入我的书架
加入引用管理器
Email Alert
RSS
作者相关文章
姚陈
蔡明刚