

Axiomata
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Leges Motus



Seminar über Fragen der Mechanik

zu folgendem Vortrag wird herzlich eingeladen

Montag, **07.07.2014, 14:15 Uhr**, Egerlandstr. 5, Raum 0.044

Principal Axis Formulations in Anisotropic Solid Mechanics

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Principal axis formulation is often used in isotropic elasticity because of its clear physical meaning and advantages. However, they are not used in dealing with anisotropic problems due to the fact that concise principal axis formulations for anisotropic materials were not developed in the past. However, recently Shariff^{[1][2][3]} developed principal axis techniques for anisotropic solids. In this seminar, we describe the advantages of using principal axis invariants in comparison to "classical" invariants. We give some interesting results and formulations, and indicate its wide range of applications. Finally, we give specific applications in biomechanics and damage mechanics.

References

- [1] M.H.B.M. Shariff
An anisotropic model of the Mullins effect
Journal of Engineering Mathematics, 56, 415-435, 2006
- [2] M.H.B.M. Shariff
Nonlinear transversely isotropic elastic solids: an alternative representation
Quarterly Journal of Mechanics and Applied Mathematics, 61:129-149, 2008
- [3] M.H.B.M. Shariff
Physical invariants for nonlinear orthotropic solids
International Journal of Solids and Structures, 48:1906-1914, 2011

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