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Mechanical response of helically wound fiber-reinforced incompressible nonlinearly elastic pipes. (English) [Zbl 1189.74021](#)

Ganghoffer, Jean-François (ed.) et al., Mechanics of microstructured solids. Cellular materials, fibre-reinforced solids and soft tissues. Papers based on the presentations at the 11th EUROMECH-MECAMAT conference, Torino, Italy, March 10–14, 2008. Berlin: Springer (ISBN 978-3-642-00910-5/hbk; 978-3-642-00911-2/ebook). Lecture Notes in Applied and Computational Mechanics 46, 109-117 (2009).

Summary: We study the mechanical response of a helically wound fiber-reinforced incompressible axisymmetric structure under torsion and compare it with the response turning out from the classical Rivlin solution of the torsion problem of a neo-Hookean pipe.

For the entire collection see [\[Zbl 1189.74006\]](#).

MSC:

[74E30](#) Composite and mixture properties

[74B20](#) Nonlinear elasticity

Full Text: [DOI](#)