

Conformal transformations in relativistic elasticity: applications to spherical symmetry

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ABSTRACT

Conformal space-time configurations are considered in the context of general relativistic elasticity. Expressions relating densities, pressures and energy-momentum tensors are obtained for the conformal configurations. The results are applied to spherically symmetric space-times with elastic matter [1],[2], showing how a new non-static shear-free solution of the Einstein field equations can be generated [3].

References

- [1] Brito, I., Carot, J., Vaz, E.G.L.R., *Gen. Rel. Grav.* **42**, 2357 (2010) and *Gen. Rel. Grav.* **44**, 287 (2012).
- [2] Magli, G., *Gen. Rel. Grav.* **24**, 139 (1992).
- [3] Brito, I., *J. Math. Phys* **56**, 092502 (2015).