

**Chevallier, D. P.**

**On the foundations of ordinary and generalized rigid body dynamics and the principle of objectivity.** (English) [Zbl 1076.70002](#)

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Summary: This article presents the foundations of Newton-Euler rigid body dynamics and its generalized forms in the light of the objectivity principle. We prove that most of the features of dynamics may be directly deduced from this principle and from properties of the group defining the geometry. In particular, these deductions seem to close the conjectures about the relevance of the objectivity principle to dynamics.

**MSC:**

**70E15** Free motion of a rigid body

**70G45** Differential geometric methods (tensors, connections, symplectic, Poisson, contact, Riemannian, nonholonomic, etc.) for problems in mechanics

**70G65** Symmetries, Lie group and Lie algebra methods for problems in mechanics

Cited in **8** Documents

**Keywords:**

Galilei group; Lie group; inertia forces