

MR1110381 (92e:58079) 58F06 (58F05 81S10)

Duval, C. (F-CNRS-T); **Elhadad, J.** (F-CNRS-T); **Gotay, M. J.** (1-USNA);
Tuynman, G. M. (F-CNRS-T)

Nonunimodularity and the quantization of the pseudo-rigid body.

Hamiltonian systems, transformation groups and spectral transform methods (Montreal, PQ, 1989), 149–160, *Univ. Montréal, Montreal, QC*, 1990.

Quantization of a constrained mechanical system can follow two routes: impose the constraints classically and then quantize the reduced system; or quantize and then apply quantum constraints following the Dirac prescription. Under favourable hypotheses, these routes lead to the same conclusions in the case of constrained systems with unimodular symmetry groups [see V. Guillemin and S. Sternberg, *Invent. Math.* **67** (1982), no. 3, 515–538; [MR0664118 \(83m:58040\)](#); Gotay, J. *Math. Phys.* **27** (1986), no. 8, 2051–2066; [MR0850590 \(87k:58103\)](#)]. For constrained systems with nonunimodular symmetry groups, it is necessary to modify the standard Dirac procedure in order that quantization and reduction commute [see Tuynman, *ibid.* **31** (1990), no. 1, 83–90; [MR1029207 \(91g:58097\)](#)]. A general account of the modified Dirac prescription in terms of symplectic induction can be found in a paper by the authors and J. Śniatycki [*Ann. Physics* **206** (1991), no. 1, 1–26]. The paper under review presents details of the modified Dirac procedure in the specific case of a pseudo-rigid body, with configuration space $GL_+(3, \mathbf{R}) \times \mathbf{R}^3$ and with zero momentum constraint on phase space.

{For the entire collection see [MR1110366 \(91m:58003\)](#)}

Reviewed by [P. L. Robinson](#)

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