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Petre Birtea (birtea@geometry.uvt.ro), Departamentul de Matematica, Universitatea de Vest, RO-1900 Timisoara, Romania, **Mircea Puta** (puta@geometry.uvt.ro), Departamentul de Matematica, Universitatea de Vest, RO-1900 Timisoara, Romania, **Tudor S Ratiu*** (tudor.ratiu@epfl.ch), Ecole Polytechnique Federale de Lausanne, Station 8, Chaire d'Analyse Geometrique, CH-1015 Lausanne, Vaud, Switzerland, and **Razvan Tudoran** (tudoran@geometry.uvt.ro), Departamentul de Matematica, Univesitatea de Vest, Timisoara, Romania. *Symmetry breaking for toral actions in simple mechanical systems.*

For simple mechanical systems, bifurcating branches of relative equilibria with breaking symmetry from a given set of relative equilibria with toral symmetry are found. Lyapunov stability conditions along these branches are given. (Received September 27, 2005)