

Hong, Chun; Zou, Lan**Abelian integrals and critical periods for a class of reversible quadratic systems.** (Chinese. English summary) [Zbl 1274.34095](#)

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Summary: The authors investigate abelian integrals and critical periods of a class of reversible quadratic systems in the paper. The Picard-Fuchs equation is derived by the abelian integrals of this reversible quadratic system. Moreover, the problem of critical periods is turned into the problem of determining the number of zeros for the solution of a Riccati equation. Finally, by means of abelian integrals, conditions under which the system has an isochronous center and an increasing period function for the reversible quadratic system are given respectively.

MSC:

- 34C08** Ordinary differential equations and connections with real algebraic geometry (fewnomials, desingularization, zeros of abelian integrals, etc.)
- 37J45** Periodic, homoclinic and heteroclinic orbits; variational methods, degree-theoretic methods (MSC2010)
- 34C25** Periodic solutions to ordinary differential equations
- 34C05** Topological structure of integral curves, singular points, limit cycles of ordinary differential equations
- 34C14** Symmetries, invariants of ordinary differential equations

Keywords:[abelian integrals](#); [critical periods](#); [Picard-Fuchs equation](#)**Full Text:** [DOI](#)