

**Lerbet, Jean**

**Some explicit relations in kinematics of mechanisms.** (English) [Zbl 0987.70002](#)  
*Mech. Res. Commun.* 27, No. 6, 621-630 (2000).

Summary: Using Lie group theory, we derive some explicit relations in kinematics of mechanisms without introducing coordinates. After a presentation of the mathematical tools, the kinematics of closed mechanisms is studied using Lie group language. We give a family of relations between dependent and independent variables and their derivatives which may be useful for linearization or for numerical integration. Two examples illustrate these relations.

**MSC:**

**70B15** Kinematics of mechanisms and robots

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

**Keywords:**

differential geometry; closure function; Taylor expansion; Lie group theory; explicit relations; kinematics of mechanisms; closed mechanisms

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