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Some Moebius-geometric theorems connected to Euclidean kinematics. (English)

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Summary: To four positions of an object in the Euclidean plane there exists an infinite set of four-bar linkages interpolating these given positions. The set contains an interpolating slider-crank as a special case. The design of such a mechanism is based on geometric reasoning and the use of elementary geometric theorems. Usually such theorems and geometric mappings are proved by kinematic arguments. But they are also interesting for their own, independently from the kinematic point of view. There occur e.g. configurations of circles and lines related to Miquel's configuration in a (real) Möbius plane. Beginning with their kinematic aspects, some 'elementary' geometric theorems are discussed and generalized.

MSC:

[53A17](#) Differential geometric aspects in kinematics

[51B10](#) Möbius geometries

[51M04](#) Elementary problems in Euclidean geometries

Cited in 1 Document

Keywords:

Euclidean plane; mechanism; Miquel's configuration; Möbius plane

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