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**Applications of line objects in robotics.** (English) Zbl 1046.70004  
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Summary: The Lie algebra of Lie group of Euclidean motions in  $E_3$  is represented as the vector space  $A_6$  of couples of vectors in  $E_3$ . We describe all subalgebras and all 3-dimensional subspaces of  $A_6$  which are orthogonal to themselves according to the Klein form, and give their kinematic interpretations. Vector fields in  $E_3$  determined by elements of  $A_6$  and their kinematic and dynamic interpretations are investigated.

**MSC:**

[70B15](#) Kinematics of mechanisms and robots

[70G65](#) Symmetries, Lie group and Lie algebra methods for problems in mechanics

[22E70](#) Applications of Lie groups to the sciences; explicit representations

Cited in 1 Document

**Keywords:**

[Lie algebra](#); [Lie group](#); [Euclidean motions](#); [Klein form](#)