

Integrable System and Motion of Curves in Projective and Similarity Geometries

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Abstract: Based on the natural frame in the projective geometry, motions of curves in projective geometry are studied. It is shown that several integrable equations including Sawada-Kotera and KK equations arise from motion of plane curves in projective geometries. Motion of space curves described by acceleration field and governed by endowing an extra space variable in similarity geometry P^3 is also studied.

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Key words: motion of curve, similarity geometry, projective geometry, integrable equation

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