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Ruled invariants and total classification of non-developable ruled surfaces. (English)
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Summary: In this paper we give the necessary and sufficient condition of which a ruled surface is the principal normal ruled surface of a space curve using the theories of ruled invariants of ruled surface in three dimensional Euclidean space. Then for the ruled surfaces in three dimensional Euclidean space we describe their geometric structures and obtain total classifications. Since the ruled surfaces are the simplest foliated submanifolds, our effective and elementary methods can be used to reveal the properties and structures of the Riemannian foliations and foliated submanifolds.

MSC:
53A04 Curves in Euclidean and related spaces
53A05 Surfaces in Euclidean and related spaces
53A17 Differential geometric aspects in kinematics
53A55 Differential invariants (local theory), geometric objects
53C12 Foliations (differential geometric aspects)

Keywords:
ruled invariant; differential invariant; structure functions of ruled surface; Frenet ruled surfaces of curve; principal normal ruled surface of curve

Full Text: DOI

References:

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