Shaikh, Absos Ali; Kim, Young Ho; Ghosh, Pinaki Ranjan
Some characterizations of rectifying and osculating curves on a smooth immersed surface.
(English) | Zbl 07431905
J. Geom. Phys. 171, Article ID 104387, 6 p. (2022)

Summary: The present paper deals with some characterizations of rectifying and osculating curves on a smooth surface with respect to the reference frame \(\{\vec{T}, \vec{N}, \vec{T} \times \vec{N}\}\). We have computed the components of position vectors of rectifying and osculating curves along \(\vec{T}, \vec{N}, \vec{T} \times \vec{N}\) and then investigated their invariancy under isometry of surfaces, and it is shown that they are invariant iff either the normal curvature of the curve is invariant or the position vector of the curve is in the direction of the tangent vector to the curve.

MSC:
53A04 Curves in Euclidean and related spaces
53A05 Surfaces in Euclidean and related spaces

Keywords:
rectifying curves; osculating curves; isometry of surfaces; normal curvature; first fundamental form; second fundamental form

Full Text: DOI

References:

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