

Curvatures of singularities of singular surfaces of revolution

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Abstract

I am interested in singular point of frontal obtained as a surface of revolution and investigating their curvature. Consider the surface of revolution as follows. Let $I \subset \mathbb{R}$ be an open interval, and $r : I \rightarrow \mathbb{R}^2$ a frontal. We set $r(u) = (x(u), y(u)) (y > 0)$ for $u \in I$, and set the surface of revolution

$$f(u, v) = (x(u), y(u) \cos v, y(u) \sin v) (u \in I, v \in \mathbb{R})$$

of r . The curve r is called the *profile curve* of f . I obtained formulas of the limiting normal curvature and the singular curvature for them and will apply them to Gauss-Bonnet theorem for Frontal. In this talk, I will present the formulas with several examples including 3/2-cusp and asteroids.

References

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- [2] Luciana F. Martins, Kentaro Saji, Samuel P. dos Santos and Keisuke Teramoto, *Singular surfaces of revolution with prescribed unbounded mean curvature*, arXiv:1712.07330v2, 2018