Evolutes and involutes of fronts in the Euclidean plane

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Abstract

Evolutes and involutes for regular curves are the classical object. Even if a curve is regular, the evolute and the involute of the curve may have singularities. By using a moving frame of the front and the curvature of the Legendre immersion, we define an evolute and an involute of the front (the Legendre immersion in the unit tangent bundle) in the Euclidean plane and discuss properties of them. We also consider about relationship between evolutes and involutes of fronts. We can observe that the evolutes and the involutes of fronts are corresponding to the differential and integral in classical calculus. This is a joint work with Tomonori Fukunaga.