On the caustic of the Bézier curve

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Abstract

A caustic curve is the envelope of light rays reflected by a curve. In this lecture the caustic curve of the Bézier curve is presented in a closed parametric form. Our main purpose is to discuss the geometric effect of a control point on the caustic curve. The geometric effect is also presented in a closed parametric form and we prove that this effect is rational. The caustic curve has a dedicated point where the reflected rays are concentrated. Our results regarding the exact parameter value of this point are also presented.

Keywords: Bézier curve, caustic curve, envelope

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