

Remarks on Busemann equation

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We discuss some structure properties of elliptic and hyperbolic solutions to the following equation

$$\left(u_y^2 - 1\right) \cdot u_{xx} - 2u_x u_y \cdot u_{xy} + \left(u_x^2 - 1\right) \cdot u_{yy} = 0,$$

which is a relative of one introduced by A. Busemann and arises in gas dynamics and in non-geometrical optics.