Second order geometry of spacelike surfaces in de Sitter 5-space

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De Sitter space is known as a Lorentz space with a positive constant curvature in the Minkowski space. A Surface with a Riemannian metric is called a spacelike surface. The aim of this work is to investigate geometrical properties on the spacelike surfaces in the de Sitter space, specially the properties of the curvature ellipse in the case of spacelike surfaces in de Sitter space S_1^5 by using the actions $SO(1,2)$ and $GL(2,\mathbb{R})$ on the system of conics defined by the second fundamental form. The main results are the classification of the second fundamental mapping and the description of the possible configurations of the LMN-ellipse. This ellipse gives informations on the binormal directions and consequently about asymptotic directions.