# CAUSTICS OF WORLD SHEETS IN LORENTZ SPACE FORMS

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There are three kinds of Lorentz space forms. Lorentz-Minkowski space is a flat Lorentz space form, de Sitter space has a positive curvature and anti-de Sitter space is a negatively curved one.

In this talk we stk to anti-de Sitter space. We have similar results to other Lorentz space forms.

A world sheet in anti-de Sitter space is a timelike submanifold consisting of a one-parameter family of spacelike submanifolds in anti-de Sitter space. We consider one parameter family of lightlike hypersurfaces along the family of spacelike submanifolds in the world sheet. The locus of the singularities (the focal sets of the lightlike hypersurfaces) form the caustics. This construction is originally from the theoretical physics ( the string theory, the brane world scenario, etc). We apply the theory of wavefront propagations ( the big front) and explain geometrical meanings.