Boğaziçi
MATH COLLOQUIUM

Legendrian dual surfaces of a spacelike curve in the 3-dimensional lightcone

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Abstract:

In this talk which is based on the joint work with Kentaro Saji given in [3], taking into account the Legendrian dualities in [2] which are the extensions of the Legendrian dualities in [1], we first introduce new extended Legendrian dualities for the 3-dimensional pseudo-spheres of various radii in Lorentz-Minkowski 4-space. Secondly, by connecting all of these Legendrian dualities continuously, we construct Legendrian dual surfaces (lying in these 3-dimensional pseudo-spheres) of a spacelike curve in the 3-dimensional lightcone. Finally, we investigate the singularities of these surfaces and show the dualities of the singularities of a certain class of such a surface in the 3-dimensional lightcone.

References

[1] S. Izumiya, *Legendrian dualities and spacelike hypersurfaces in the lightcone*, Moscow Mathematical Journal, **9** (2009), 325-357.

[2] S. Izumiya, H. Yıldırım, *Extensions of the mandala of Legendrian dualities for pseudo-spheres in Lorentz-Minkowski space*, Topology and its Applications, **159** (2012), 509-518.

[3] K. Saji, H. Yıldırım, *Legendrian dual surfaces of a spacelike curve in the 3-dimensional lightcone*, Journal of Geometry and Physics, **179** (2022) 104593, 1-21.

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