

Refocussing and Virtual Legendrian Knots

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Abstract

We begin with a result on the refocussing of null geodesics in space-times. We show that all oriented refocussing 2-dimensional Lorentz manifolds are also strongly refocussing.

We also introduce a theory of virtual Legendrian knots. We show that the groups of Vassiliev invariants of virtual Legendrian knots and of virtual framed knots in the spherical cotangent bundle of an oriented surface are isomorphic. In particular, Vassiliev invariants cannot be used to distinguish virtual Legendrian knots which are isotopic as virtual framed knots and have equal virtual Maslov number.