1078-53-141   **Shyuichi Izumiya*** (`izumiya@math.sci.hokudai.ac.jp`), Department of Mathematics, Faculty of Science, Hokkaido Universty, Sapporo, 060-0810, Japan. *Lightlike geometry of spacelike surfaces in Minkowski space-time.* Preliminary report.

In [S. Izumiya and M. C. Romero Fuster, Selecta Math. NS 13 (2007),23–55], the lightlike geometry of codimension two spacelike submanifolds in Lorentz-Minkowski space was developed as an application of Lagrangian/Legendrian singularity theory. As a consequence, new invariants were discovered which are called *lightcone curvatures*. In this talk I will explain some topics related to those curvatures. Topics may include some of the followings:

1)Basic framework of lightlike geometry,

2) Marginally trapped surfaces,

3) Totally absolute lightcone curvatures and the lightcone Wilmore conjecture,

4) Spacelike knot theory for spacelike surfaces.

Although some of the above results hold in the general dimension, I will only explain the results for spacelike surfaces in Lorentz-Minkowski 4-space. (Received December 03, 2011)

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