13th International Workshop on Dynamical Systems and Applications (**IWDSA 2014**), TOBB Economy and Technology University, Ankara, Turkey, June 14, 2014.

Nonuniqueness of representations of wave equations in Lorentzian space-times

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Abstract

The talk wants to bring to attention that the formulation of physically reasonable initial-boundary value problems for wave equations in Lorentzian space-times is not unique, i.e., that there are inequivalent such formulations that lead to a different outcome of the stability discussion of the solutions. For demonstration, the talk uses the case of the wave equation on a part (the right "Rindler wedge") of 2-dimensional Minkowski space. The used methods can be generalized to wave equations on stationary globally hyperbolic space-times with horizons in higher dimensions, such as Schwarzschild and Kerr space-times.