

Program, SMS års- och höstmöte, 20 november 2020

Mötet äger rum på zoom,

<https://lu-se.zoom.us/j/62367688248?pwd=Qk5yckJ1U3NlN1lpalp4NnBVb3hiQT09>

Lösenord: SMS2020

14.00–14.45 John Andersson
Presentation av Erik Lindgrens arbeten

15.00–15.45 Tobias Ekholm
Presentation av Thomas Kraghs arbeten

15.50–16.20 David Lundberg
Positivity of mass and Jang's equation in Mathematical General Relativity

We will introduce the field of Mathematical General Relativity and discuss one of the most famous conjectures in this field: Positive Mass Conjecture. Roughly speaking, the conjecture asserts that for a non-trivial isolated physical system, the energy of the gravitational field is nonnegative. In the language of differential geometry, this is a statement about an initial data set for the Einstein equations, which is a mathematical object modelling a slice of a spacetime. Starting with the results obtained by Schoen and Yau around 1980, there has been substantial progress on proving the conjecture in the so-called asymptotically flat case, i.e. when the geometry of a slice near infinity resembles that of a flat plane in Minkowski spacetime. Less is known in the case when the initial data is asymptotically hyperbolic (i.e. modelled on a hyperboloidal slice of Minkowski spacetime). After giving a survey of the known results we will discuss how the method of Jang equation reduction, originally devised by Schoen and Yau to prove the positive mass conjecture for asymptotically flat initial data sets, can be adapted to the asymptotically hyperbolic setting.

16.30 Årsmöte. Dagordning finns i separat dokument.