

# Seminar

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## Analysis of a Bianchi-like equation satisfied by the Mars-Simon tensor

Friday, September 8, 2017

at 13:00 h

ESI, Boltzmann Lecture Hall

**Abstract:** The Mars-Simon tensor (MST) plays an important role to e.g. provide gauge invariant characterizations of the Kerr-NUT-(A)(dS) family, or to establish certain Kerr uniqueness results. It satisfies a Bianchi-like equation. In this talk we analyze this equation in close analogy to the Bianchi equation, in particular one can show that the constraints are preserved supposing that a generalized Buchdahl condition holds. This permits the systematic construction of solutions to this equation in terms of a well-posed Cauchy problem. A particular emphasis lies on the asymptotic Cauchy problem, where data are prescribed on a spacelike  $\mathcal{S}_{\text{cri}}$  (i.e. for positive cosmological constant). In contrast to the Bianchi equation, the MST equation is of Fuchsian type at  $\mathcal{S}_{\text{cri}}$ , for which we establish existence and uniqueness results. This is joint work with Florian Beyers.

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