

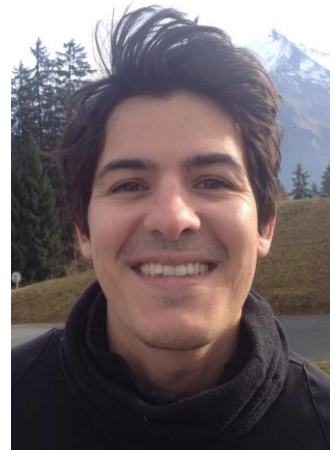
LABORATORY FOR ELEMENTARY-PARTICLE
PHYSICS (LEPP)

Theory Seminar

Javi Serra

TU Munich

Weak Gravity Conjecture from Amplitudes' Positivity



In this talk I will show how to derive positivity bounds for scattering amplitudes in theories with a massless graviton in the spectrum in four spacetime dimensions. These new bounds imply that extremal black holes are self-repulsive, $M/|Q| < 1$, once higher-dimensional operators beyond Einstein-Maxwell are taken into account, thus providing an S-matrix proof of the weak gravity conjecture. I will also present applications of these bounds to other gravitational theories, and discuss some future directions of investigation.

Friday, Nov. 1, 2019

1:00pm

401 Physical Sciences Building