Department of Mathematics, BGU

Special lecture in Geometry and Physics

Dynamics of Spacetime — Einstein's equations as a geometric flow.
Speaker: *Dr. David Fajman*)**Vienna**(

The interpretation of Einstein's equations as a geometric flow (the Einstein flow) allows to study the evolution of spacetimes from a dynamical point of view. Two types of initial data are mainly considered: Firstly, asymptotically flat data describing initial states of isolated sefl-gravitating systems and secondly, data on closed manfiolds describing initial states for cosmological spacetimes. Studying the evolution of data under the flow we aim to understand its long-time behavior and the global geometry of its time-development. We are interested in the construction of static solutions (or static up to a time-rescaling) as potential attractors of the flow and their nonlinear stability, completeness and incompleteness properties of spacetimes and singularity formation. We present new methods to construct and study solutions by geometric and analytical tools as well as several results in the directions mentioned above. We consider in particular the case of matter models coupled to the Einstein equations, which turns out to provide several interesting phenomena and new classes of solutions.

Time: *Nov ,21 ,12:00—11:00 2016*

Location: *Math building ,(58) room ,201 BGU*

Web: *https://www.math.bgu.ac.il/research/events/fajman*