GR 401 Mathematische Relativitätstheorie

Zeit: Donnerstag 10:30–11:50 Raum: K

Hauptvortrag

GR 401.1 Do 10:30 K

Is general relativity 'essentially understood' ? — •Helmut Friedrich — Max-Planck-Institut für Gravitationsphysik, Am Mühlenberg 1, 14476 Golm

The content of Einstein's theory of gravitation is encoded in the properties of the solutions to his field equations. There has been obtained a wealth of information about these solutions in the ninety years the theory has been around. It led to the prediction and the observation of physical phenomena which confirm the important role of general relativity in physics. The understanding of the domain of highly dynamical, strong field configurations is, however, still quite limited. The gravitational wave experiments are likely to provide soon observational data on phenomena which are not accessible by other means. Further theoretical progress will require, however, new methods for the analysis and the numerical calculation of the solutions to Einstein's field equations on large scales and under general assumptions. We discuss some of the problems involved, describe the status of the field and recent results, and point out some open problems.

Hauptvortrag

GR 401.2 Do 11:10 K

Elasticity, a matter model for isolated systems — •Bernd Schmidt — Max-Planck-Institut für Gravitationsphysik, Am Mühlenberg 1, 14476 Golm

Formulations of elasticity in General Relativity were given by various authors in the second half of the last century. No effort, however, was made to study existence questions under various circumstances. This is even so in Newtonian gravity.

I will describe some existence results and conjectures for elastic bodies with and without gravitation.