Mathematical foundations of relativity   Dr. Y.Itin

This semester I'll be teaching (in Hebrew) a course with the above title.

The course will take place on Wednesdays, 17—18.45, in room 110.

Previous knowledge in multilinear algebra, differential geometry and physics is not required (however it can be useful).

Here is a short description of the course.

- From Aristotle to Galileo. Galileo spacetime

- Newton mechanics, Euler-Lagrange equations

- Maxwell equations

- Minkowski (Lorentz) spacetime

- Special theory of relativity

- Tensor algebra

- Algebra of exterior forms, Maxwell equations

- (pseudo)Riemannian geometry, differential forms

- General theory of relativity

- Black hole solution

- Riemann-Cartan geometry, linear connections, torsion, non-metricity

- Poincare gauge gravity, metric-affine gravity, teleparallel gravity