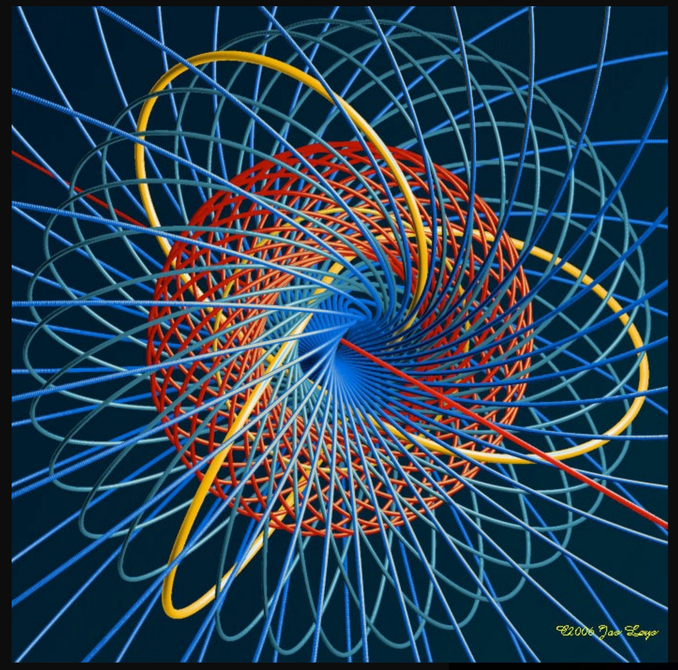
Differential Geometry MS-E1531 (5-10cr), spring 2024

Riemannian Geometry



Photos: Jos Leys

This course is an introduction to the basic machinery behind the modern differential geometry: tensors, differential forms, smooth manifolds and vector bundles. The geometries lying above these structures are involved in several applications through mathematical analysis, physics, stochastic and statistical models.

The central goal is to become familiar with this particular language of abstract mathematics that opens the venue to apply geometric methods in different applications. A modern viewpoint to classical Riemannian geometry is served in addition to the possibility to open the door to the beautiful worlds of contact and symplectic geometry that are present in the most recent progress of geometrization of applications. The course provides basic skills to recognize geometric phenomena in mathematical analysis and applications.

Lectures on Tuesdays (Y313, Otakaari 1, Undergraduate Centre) and Thursdays 10-12 (326, Otakaari 4 , Konetekniikka.). Exercise sessions on Fridays 10-12 (U356 Alma Media, Otakaari 1, Undergraduate Centre). First lecture Tue 9th Jan 2024.

Welcome !

Kirsi Peltonen (kirsi.peltonen@aalto.fi)