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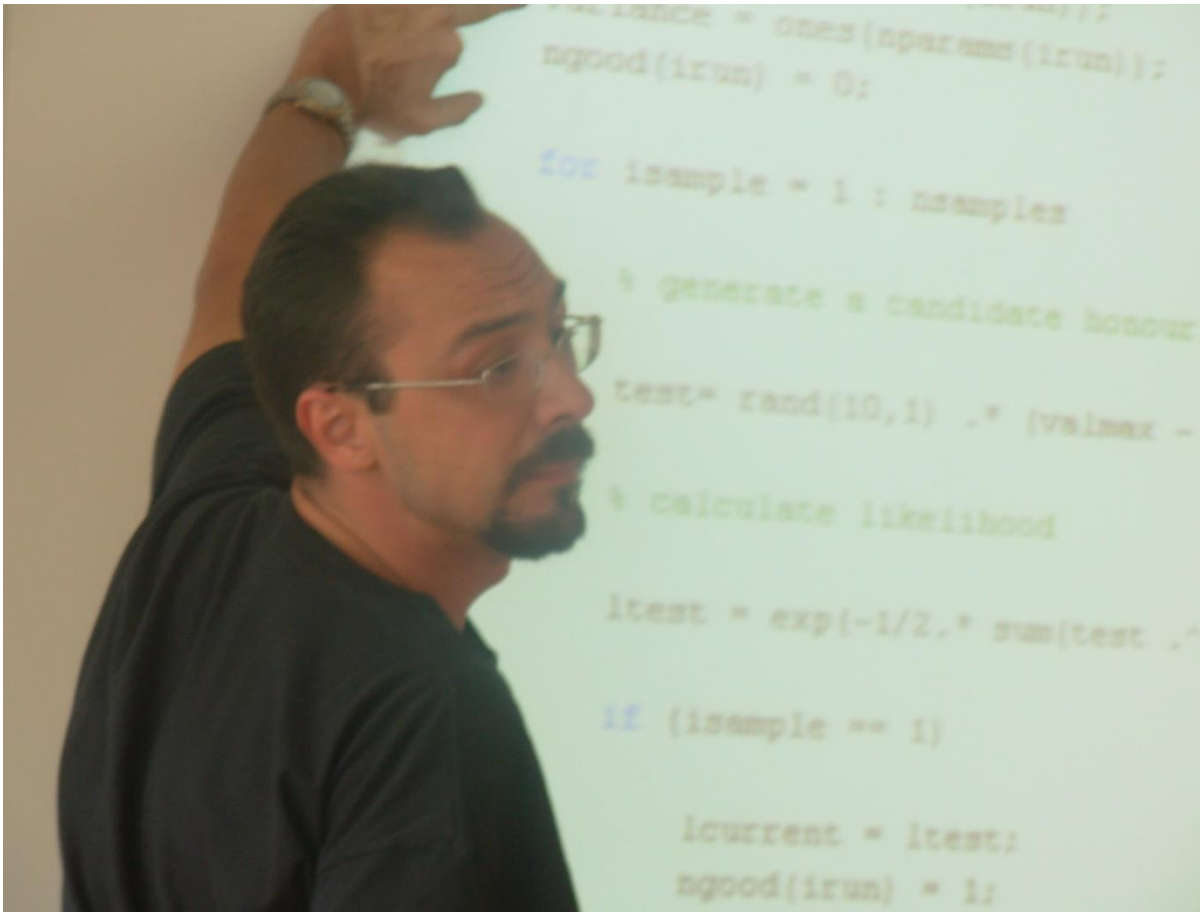
Advanced study course

Inverse problem. From theory to applications

Client: Centre for Hydrogeology and Geothermics (CHYN; Univ. of Neuchâtel)

Keywords: inverse problem; geophysics; hydrogeology, geostatistics, acoustics



Summary: Inverse problem consists of estimating model properties from measurements of what is being modelled. Model inversion is a difficult task, since solutions may be unstable or non-unique. In this 40h course,a general approach to the solution of inverse problems, based on probability theory, is proposed. The basic difficulties of inverse problem are explained in detail together with approaches to overcome them. The theory is illustrated with a number of examples and applications in different fields, e.g., geophysics, hydrogeology, acoustics, etc. This course was tought in Neuchâtel, in cooperation with professors Albert Tarantola and Philippe Renard.