Change of schedule

Saturday, October 16th, 2021   *Session 4*

15.45-16.10   **Estimating the conditional distribution in functional regression problems**
T. Kuenzer (Graz, Austria)

Estimating the conditional distribution in functional regression problems

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We consider the problem of consistently estimating the conditional distribution $P(Y \in A|X)$ of a functional data object $Y = (Y(t) : t \in [0,1])$ given covariates X in a general space, assuming that Y and X are related by a functional regression model. Two natural estimation methods are proposed, based on either the empirical distribution of the estimated model residuals, or fitting functional parametric models to the model residuals. In the case of functional linear regression, consistent estimation of the conditional distribution can be achieved, both when Y is an element of a separable Hilbert space, and when Y is an element of the Banach space of continuous functions. The latter results imply that sets A that specify path properties of Y, which are of interest in numerous applications, can be considered.