

**Title:** Regularized Radon-Nikodym differentiation and some of its application.

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**Abstract:** Estimation of Radon-Nikodym derivatives has now attracted much attention because of its importance in such fields of machine learning as, for example, domain adaptation. In the talk we are going to discuss how the regularization theory and its methods can be profitably used in Radon-Nikodym numerical differentiation. In particular, we will demonstrate the role of general source conditions and regularized Christoffel functions in tight estimation of Radon-Nikodym derivatives based on the samples from the involved probability distributions. Applications and numerical simulations supporting theoretical results will be also presented.

The talk is based on the results of joint research with Duc Hoan Nguyen (RICAM) and Werner Zellinger (RICAM) performed within the FFG COMET-Module "Security and Safety for Shared Artificial Intelligence (S3AI)"