October 2$^{nd}$, 2017
KAP 414
2:00 P.M. – 3:00 P.M.

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## "Portfolios generated by optimal transport"

**Abstract:** First introduced by Fernholz in stochastic portfolio theory, functionally generated portfolio allows its investment performance to be attributed to directly observable and easily interpretable market quantities. In previous works we showed that Fernholz's multiplicatively generated portfolios have deep connections with optimal transport and the information geometry of exponentially concave functions. Recently, Ruf and Karatzas introduced a new additive portfolio generation whose relation with optimal transport was studied by Vervuurt. We show that additively generated portfolios can be interpreted in terms of the celebrated dually flat information geometry of Bregman divergence. Moreover, we characterize, in a sense to be made precise, all possible forms of functional portfolio generation that contain the two known constructions as special cases. Each construction involves a divergence functional on the unit simplex measuring the volatility captured, and admits a pathwise decomposition for the portfolio value.