



The deconvolution operator and the difference of convex risk measures

Ove Göttsche

Stochastic System and Signal Theory

Date & Place: 8 March 2012, Ravelijn 2231

Time: 15:45–16:45

Abstract:

In this talk, we introduce the notion of the deconvolution, which is known in convex analysis, as an operation in risk analysis. Based on the axiomatic approach of Artzner, Delbaen, Eber, and Heath in 1999 Föllmer and Schied derived a dual representation of convex risk measures in 2002. We characterize the difference of two convex risk measures on L^P -spaces and give sufficient conditions for this difference to be a convex risk measure as well. We derive its dual representation. Similarly, we describe the sup-convolution of two convex risk and give its dual representation. The connection between deconvolution and difference is that the penalty function of the deconvolution of two convex risk measures is the difference of the penalty functions of these two risk measures and vice versa.

Because of our heavy reliance on convex analysis, in particular on the deconvolution and the difference of convex functions, we dedicate a the first part of the talk to this field. This enables us to use the elegant dual theory for convex risk measures.