

# Pierre Maréchal

---

Title:

Deconvolution of probability densities by mollification

Abstract:

We use mollification to regularize the problem of deconvolution of random variables. This regularization method provides a unifying framework for comparing the advantages of various filter-like techniques such as deconvolution kernels, Tikhonov or spectral cutoff. In particular, the mollification approach allows to relax some restrictive assumptions required by deconvolution kernels, and has better stabilizing properties compared to spectral cutoff or Tikhonov. We show that this approach achieves optimal convergence rates on the Besov and Sobolev classes. The qualification can be arbitrarily high depending on the choice of approximate unit used. We propose an adaptive choice of the regularization parameter using the Lepskii method and we will illustrate our point by means of numerical simulations.