

Some recent results in strong approximation theory

Abstract Prof. Berkes:

Strong Wiener approximation of partial sums of i.i.d. random variables goes back to Strassen (1964) and turned out to be an extremely powerful tool in probability and statistical inference. Optimal results in this field have been obtained in the landmark papers by Komlos, Major and Tusnady (1975, 1976) and have been extended further by Sakhanenko, Eimahl and Zaitsev. In contrast, existing results for dependent variables are substantially weaker. In this talk we discuss some recent results in this direction. We obtain a polynomial remainder term in the Gaussian approximation of the empirical process of mixing r.v.'s (joint work with S. Hoermann), improving the old result of Berkes and Philipp (1977). We also give near Komlos-Major-Tusnady rates in "split" approximation of mixing random variables (joint work with S. Hoermann and J. Schauer).