1038-62-108 **Michel Carbon*** (carbon.michel@orange.fr), 5 rue du Général de Gaulle, app. B207, 35760 Saint-Grégoire, France. *Density estimation by frequency polygons on random fields.*

The purpose is to investigate the frequency polygon as a density estimator for mixing stationary random fields indexed by multidimensional lattice points space. Optimal bin widths which asymptotically minimize integrated mean square errors (IMSE) are derived. Under weak conditions, frequency polygons achieve the same rate of convergence to zero of the IMSE as kernel estimators. They can also attain the optimal uniform rate of convergence under general assumptions. Rates of a.s. convergence are also given. Asymptotic normality of frequency polygons is also established. (Received February 03, 2008)