1017-32-20 **Oleg Eroshkin*** (oleg.eroshkin@unh.edu), Department of Mathematics and Statistics, Kingsbury Hall, University of New Hampshire, Durham, NH 03824. *Pluripolarity of manifolds of Gevrey class and asymptotics of n-width.*

Let D be a bounded domain in $\mathbb{C}^m$ containing a compact set K. We consider the compact set $A_K^D \subset C(K)$ of continuous functions f that allow holomorphic extensions to D satisfying the inequality $||f||_D \leq 1$.

We study how the "massiveness" of A_K^D is related to geometric properties of K. It is the standard approach to characterize the "massiveness" of compacts by means of n-width or ε-entropy, introduced by A. N. Kolmogorov.

We define Kolmogorov dimension of K in terms of asymptotic behavior of n-width (or ε-entropy) of A_K^D. This notion is related to pluripotential properties of K. If Kolmogorov dimension of compact $K \subset \mathbb{C}^m$ less than m, then K is pluripolar.

E. Bedford proved that real-analytic non-generic manifolds are pluripolar. Recently D. Coman, N. Levenberg and E. Poletsky proved that curves of appropriate Gevrey class are pluripolar. We generalize these results to non-generic manifolds of Gevrey class, estimate the Kolmogorov dimensions of such manifolds and show that these estimates are sharp. (Received December 30, 2005)