ESTIMATES FOR CORRELATION IN DYNAMICAL SYSTEMS: FROM HÖLDER CONTINUOUS FUNCTIONS TO GENERAL OBSERVABLES

I. V. Podvigin

For many dynamical systems that are popular in applications, estimates are known for the decay of correlation in the case of Hölder continuous functions. In the present article, we suggest an approach that allows us to obtain estimates for correlation in dynamical systems in the case of arbitrary functions. This approach is based on approximation and estimates are obtained with the use of known estimates for Hölder continuous functions. We apply our approach to transitive Anosov diffeomorphisms and derive the central limit theorem for the characteristic functions of certain sets with boundary of zero measure.

Key words and phrases: correlation, the best approximation, approximation spaces, Anosov diffeomorphisms, central limit theorem.

Podvigin Ivan Viktorovich
  Sobolev Institute of Mathematics,
  Novosibirsk, 630090 Russia.
  Novosibirsk State University,
  Novosibirsk, 630090 Russia.
  E-mail: ipodvigin@math.nsc.ru