

Almost periodicity and ergodicity in Stepanov-Orlicz spaces : applications and perspectives

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Abstract

Almost periodicity and ergodicity defined in Lebesgue spaces have been successfully researched in abstract differential equations and evolution equations. But in some instances Orlicz spaces are most appropriate.

In this presentation, we give an exhaustive overview of almost periodicity, introduced by Hillmann in 1986, in Orlicz spaces . A particular attention is paid to the Stepanov-Orlicz almost periodicity.

We characterize the concept of Stepanov-Orlicz almost periodic functions via the Bochner transform and we obtain a result of existence and uniqueness of Bohr almost periodic solution of some abstract differential equation.

Finally, we introduce and compare three classes of ergodic functions in Stepanov-Orlicz sense.