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*Almost periodic equidistributed functions*

There are plenty of periodic motions in our life. However, a linear combination of two or more periodic motions need not be periodic any longer. Almost periodic functions are more general than periodic functions. Therefore, the class of almost periodic functions forms a more suitable object of the study from a structural point of view. Equidistribution, which is also known as uniform distribution, is an important concept in many areas including number theory, ergodic theory, probability, and theoretical computer science. As we know sequence is a special case of function. With this knowledge, the main idea of the research was to generalize the existing concept of equidistributed sequences to equidistributed functions by using the property of the invariant mean on almost periodic functions. In the research, we first define 'equidistributed functions' with values in topological spaces, then give a necessary and sufficient condition for this kind of equidistribution. Following this, due to interest in almost periodicity, we define the notion of 'almost periodic equidistribution' and prove an analog of the Weyl criterion for such equidistributed functions. Finally, as an application, a generalization of Van der Corput's difference theorem is proved. This presentation is based on part of the results of my thesis, which supervised by Dr. Mehdi S. Monfared.