

1125-43-542

Azita Mayeli* (amayeli@gc.cuny.edu), NYC, NY. *Structure of cyclic shift-invariant spaces on the Heisenberg group.*

In signal processing and applications, signals and images are considered as functions of finite energy in a subspaces which are shift-invariant. The structure of these spaces and their bases has been studied using range function approach by M. Bownik in the Euclidean frame theory and by the author and her collaborators in non-commutative settings. An alternative approach using *bracket map* for the study of the cyclic shift-invariant (or principle shift-invariant) subspaces and their bases on locally compact abelian groups has been introduced by E. Hernandez, H. Sikic, G. Weiss and E. Wilson. In this talk, we shall introduce an extension of the bracket map for the non-commutative Lie group, the Heisenberg group, and use it to establish conditions on the generator of a cyclic space under which such space has an orthonormal basis, Riesz basis or a frame. As an application of our theory we show how the translation frames for cyclic subspaces on the Heisenberg group can be associated to orthonormal Gabor systems on the Euclidean space. We will conclude this talk by addressing few interesting questions with regard to the properties of the generators in terms of the bracket map. (Received September 06, 2016)