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***Beurling-Fourier Algebras, Amenability and Arens Regularity***

ABSTRACT. In this talk, we introduce the class of Beurling-Fourier algebras on locally compact groups which is the non-commutative generalization of classical Beurling algebras on abelian groups. We give some general results with regard to the operator amenability and Arens regularity of these algebras and show that they are closely related to the classical Beurling algebras. We then apply them to study explicitly the Beurling-Fourier algebras over  $2 \times 2$  unitary group  $SU(2)$ . This, in particular, allows us to construct families of closed unital subalgebras of the Fourier algebra of certain products of  $SU(2)$  which are Arens regular. We also study Beurling-Fourier algebras on Heisenberg groups.

This is a joint work with Hun Hee Lee.