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PO BOX 880130, Lincoln, NE 68588. *Invariant Basis Number for  $C^*$ -Algebras.*

We develop the ring theoretic notion of Invariant Basis Number (BN) in the context of  $C^*$ -algebras and their modules. A characterization for unital  $C^*$ -algebras with IBN is given in  $K$ -theoretic terms and permanence properties of IBN are considered. We will also explore  $C^*$ -algebras without IBN and describe their structural information in terms of a quantity termed the Basis Type. Universal objects, permanence properties, and existence results for Basis Types are given. Connections to graph  $C^*$ -algebras and Leavitt Path Algebras are present and will be discussed. (Received August 28, 2014)