1073-16-18   **Miodrag Cristian Iovanov*** (`yovanov@gmail.com`), Los Angeles, CA 90089. *Serial (co)algebras, infinite abelian groups, and a class of quantum groups.*

The classical theory of serial rings is well known; such rings have the property that any f.p. module is a direct sum of indecomposable serial modules, and if the ring is artinian (e.g. a f.d. algebra), every module decomposes as such. It is natural to ask the question of when such decompositions hold for the category of all finite dimensional representations of an algebra, or all rational representations, or, more generally, in a linear locally f.g. category. Equivalently, this turns into the study of the serial coalgebras and their comodules. We show how techniques from the theory of Infinite Abelian Groups can be generalized to the case of such "serial locally finitely generated categories". Using extensions of basic and serving subgroups, height, depth etc. we can prove, for example, analogues of Prufer theorems or Kulikov's criterion, and show when every (f.d.) comodule is as a direct sum of uniserials, or of indecomposables. In particular, we also answer a few general open questions. We also classify coserial pointed Hopf algebras; they include interesting examples of quantum groups, such as quantum SL2 (or Uq(sl2)). Part of these also occur from another combinatorial perspective: Hopf algebras having non-zero integral and with a basis of paths in a quiver (co)algebra. (Received June 7, 2011)