

A Duality between comodules and contra-modules

Ever since their first appearance in 1965, comodules have been a prominent field of study in mathematics - be it for their very restrictive internal structures, for their applications in the theory of Hopf Algebras or any other number of reasons. But in the same article - literally a few lines apart - contra-modules also experience their birth... And death. Contrary to comodules, they haven't seen much use in modern mathematics ever since. Until recently, with their "re-discovery".

On the other hand, in the field of pseudocompact and discrete modules over pseudocompact algebras we have the Pontryagin duality and also a natural duality between comodules over a coalgebra and pseudocompact modules over the dual pseudocompact algebra - but we don't really have a nice coalgebra-dual for discrete modules. But now, with contra-modules, we do.

This talk's aim is to give a brief overview of these results and present a new result which completes the cycle of dualities.