

# Modules invariant under automorphisms of their covers and envelopes

Pedro Antonio Guil Asensio

**Contact:** , Universidad de Murcia

**Abstract:** We use the type theory for rings of operators due to Kaplansky to describe the structure of modules that are invariant under automorphisms of their covers and envelopes. Also, we highlight the importance of Boolean rings in the study of such modules. As a consequence of this approach, we are able to further the study initiated by Dickson and Fuller regarding when a module invariant under automorphisms of its injective envelope is invariant under any endomorphism of it. In particular, we find conditions for several classes of noetherian rings which ensure that modules invariant under automorphisms of their injective envelopes are quasi-injective. In the case of a commutative noetherian ring, we show that any finitely generated or nonsingular automorphism-invariant module is quasi-injective.