

1136-16-37

Kulumani M Rangaswamy*, 1420 Austin Bluffs Parkway, Colorado Springs, CO 80918.

Cotorsionness of modules by extension of homomorphisms.

Let R be an integral domain and let k be an infinite cardinal. Let P denote the direct product of k copies of R and let S denote the direct sum of k copies of R . In his investigation of homomorphic images of P , George Bergman (Pacific J. Math, vol. 274 (2015)) raised the question of describing, when R is ring of integers, the R -modules A having the property that every homomorphism from S to A extends to a homomorphism from P to A . We show that, when R is a Dedekind domain, the R -modules A with the stated property are precisely the cotorsion modules. When R is an arbitrary integral domain, generalization to cotorsion theories of R -modules leads to the consideration of the three well-known types of cotorsionness- the Enochs, the Matlis and the Warfield cotorsion modules (Received December 05, 2017)