SEMIREGULAR MODULES RELATIVE TO A PRERADICAL

TAYYEBEH AMOUZEGAR

Abstract. Let $\tau_M$ be a preradical on the category $\sigma[M]$ for some module $M$. A module $N \in \sigma[M]$ is called $\tau_M$-semiregular in $\sigma[M]$ if for all $n \in N$, there exists a decomposition $N = A \oplus B$ such that $A$ is a projective submodule of $nR$ and $nR \cap B \subseteq \tau_M(N)$. We prove that if $N \in \sigma[M]$ is a projective module, then $N$ is $\tau_M$-semiregular if and only if $N$ is finitely $\tau_M$-supplemented and that $\tau_M(N)$ is quasi finitely strongly lifting (for short QFSL) if and only if every finitely generated submodule of $N/\tau_M(N)$ is a direct summand and $\tau_M(N)$ is QFSL. Furthermore, it is shown that if $N \in \sigma[M]$ is a $\tau_M$-semiregular module, then $N$ is finitely refinable if and only if every submodule of $\tau_M(N)$ is QFSL in $N$ if and only if every finitely generated submodule of $\tau_M(N)$ is DM in $N$.

MSC 2010. 16D10, 16D80, 16D40.

Key words. $\tau_M$-semiregular modules; projective modules, $\tau_M$-supplement submodules, finitely generated submodules.

REFERENCES


Received March 27, 2015
Accepted December 30, 2015

Quchan University of Advanced Technology
Department of Mathematics
Quchan, Iran
E-mail: t.amoozegar@yahoo.com
E-mail: t.amouzgar@qiet.ac.ir