EXTENDING AND LIFTING TYPE MODULES

SEPTIMIU CRIVEI

Abstract. An extending (or CS) module is defined as a module with the property that every submodule is essential in a direct summand. To some extent, its dual notion is that of lifting module, which is a module $M$ with the property that every submodule $N$ of $M$ contains a direct summand $K$ of $M$ such that $N/K$ is superfluous in $M/K$. They have been intensively studied throughout the last two decades, and a number of generalizations have been given. We consider extending and lifting modules with respect to a proper class of short exact sequences of modules, give properties of such relative $\Sigma$-extending and $\Sigma$-lifting modules, and discuss some connections with approximations of modules and natural classes of modules.

Faculty of Mathematics and Computer Science, “Babeș-Bolyai” University, Str. M. Kogălniceanu 1, 400084 Cluj-Napoca, Romania
E-mail address: crivei@math.ubbcluj.ro