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Philipp Rothmaler* (philipp.rothmaler@bcc.cuny.edu), BCC CUNY CP315, Univ Ave & W 181 St, Bronx, NY 10453. *Definable subcategories of modules*. Preliminary report.

Complete theories of modules were characterized in terms of elementary invariants in the mid 70's independently by Baur, Monk, Martyanov, and Garavaglia. But there are other, incomplete, theories that rival the complete theories in importance. These are the theories whose model classes are closed under direct sum and direct summand. Such model classes are exactly the definable subcategories that arise in representation theory, and they are in bijective correspondence with the closed subsets of the Ziegler spectrum. They are precisely the classes of modules that are axiomatized by implications of positive primitive formulas. A preservation theorem states that these classes are also exactly the classes closed under direct limit, direct product and pure substructure.

I will report on some algebraic and some model-theoretic results obtained jointly with Ivo Herzog on this important kind of subcategory. (Received August 02, 2008)