

1023-13-466

**Javid Validashti\*** ([jvalidas@math.purdue.edu](mailto:jvalidas@math.purdue.edu)), Department of Mathematics, Purdue University, 150 N. University Street, W. Lafayette, IN 47907, and **Bernd Ulrich** ([ulrich@math.purdue.edu](mailto:ulrich@math.purdue.edu)), Department of Mathematics, Purdue University, 150 N. University Street, W. Lafayette, IN 47907. *A criterion for integral dependence of modules.*

Let  $R$  be a universally catenary locally equidimensional Noetherian ring. We give a multiplicity based criterion for an arbitrary finitely generated  $R$ -module to be integral over a submodule. Our proof is self-contained and implies the previously known numerical criteria for integral dependence of ideals and modules. (Received September 13, 2006)