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Neil Epstein and **Yongwei Yao***, 750 COE, 7th floor, 30 Pryor Street, Department of Mathematics and Statistics, Georgia State University, Atlanta, GA 30303. *Criteria for flatness and injectivity.*

Let R be a commutative Noetherian ring. We give criteria for flatness of R -modules in terms of associated primes and torsion-freeness of certain tensor products. This allows us to develop a criterion for regularity if R has characteristic p , or more generally if it has a locally contracting endomorphism. Dualizing, we give criteria for injectivity of R -modules in terms of coassociated primes and (h-)divisibility of certain Hom-modules. This is joint work with Neil Epstein. (Received January 19, 2011)