1172-13-30 **Linquan Ma*** (lquanma1019@gmai.com), 150 N University Street, West Lafayette, IN 47907, and **Pham Hung Quy**. *A Buchsbaum theory for tight closure.*

A Noetherian local ring is called Buchsbaum if the difference between the multiplicity and colength of any ideal generated by a system of parameters is an invariant that does not depend on the parameters. For instance, Cohen-Macaulay rings are Buchsbaum and the Buchsbaum property can be viewed as a natural weakening of (and in some sense closest to) being Cohen-Macaulay. In this talk, we study a tight closure analog of the Buchsbaum property by comparing the multiplicity of a parameter ideal with the colength of its tight closure, and under mild assumptions, we give several characterizations for rings such that the difference is independent of the parameters. These characterizations are in parallel with results from Buchsbaum theory, and they indicate that, unsurprisingly, these rings are natural weakenings of, and closest to being F-rational. Joint work with Pham Hung Quy. (Received August 07, 2021)