1057-18-244 **Jinzhong Xu*** (jxu@theabfm.org), 1648 McGrathiana Parkway Suite 550, Lexington, KY 40511.
Bass Numbers and Dual Bass Numbers.

Over a commutative Noetherian ring R, the Bass numbers, μ_i(p,M), were defined by H. Bass in 1963 through minimal injective resolution of R-module M for each prime ideal p in R. The properties of the invariants provide a powerful means in studying structures of certain important modules and rings. By existence of flat covers and flat resolutions, the dual Bass number, π_i(p, M), were defined in 1997. The Bass numbers and dual Bass numbers are homological invariants that share common characteristics in describing modules and rings and revealing their homological relationships, but in a manner of duality.

In this talk, we will first briefly review the Bass numbers and dual Bass numbers. We then will give a comparison of roles of these invariants in studying modules with focuses on vanishing properties. At the end, we will list some results and questions in studying dual Bass numbers. (Received January 25, 2010)