1147-11-85   **Alexander J Carney*** (`acarney@berkeley.edu`). *The arithmetic Hodge-index theorem and dynamical systems.*

The Hodge-index theorem in classical algebraic geometry states that the signature of the intersection form on a surface is $+1, -1, \ldots, -1$. In one of the fundamental results of Arakelov theory, Faltings and Hriljac extend this to arithmetic surfaces by relating the intersection pairing to the negative of the Néron-Tate height pairing. In this talk, I'll explain how Yuan and Zhang (in the number field case) and my work (in the function field case) generalize this to higher dimensional varieties. An important use of arithmetic intersection theory is in defining height functions of both points and subvarieties, and as an example I will show how the Hodge-index theorem is used to prove a rigidity theorem for preperiodic points on algebraic dynamical systems. (Received December 04, 2018)