Higher height paining and extensions of mixed Hodge structures

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The height pairing between algebraic cycles over global fields is an important arithmetic invariant. It can be written as sum of local contributions, one for each place of the ground field. Following Hain, the Archimedean components of the height pairing can be interpreted in terms of biextensions of mixed Hodge structures. In this talk we will explore how to extend the Archimedean contribution of the height pairing to higher cycles in the Bloch complex and interpret it as an invariant associated to a mixed Hodge structure. This is joint work with S. Goswami and G. Pearlstein.