

Mihnea Popa: **Positivity for Hodge modules and geometric applications**

M. Saito's theory of Hodge modules provides a powerful generalization of classical Hodge theory that is beginning to find basic applications to birational geometry. One of the main reasons for this is that generalizations of Hodge bundles and de Rham complexes arising in this context satisfy analogues of well-known vanishing and positivity theorems. I will review a number of such results that have been obtained recently, and how they can be applied to deduce new statements regarding generic vanishing, holomorphic one-forms, or families of varieties of general type. Much of this work is joint with C. Schnell.