ON THE FIXED PART OF PLURICANONICAL SYSTEMS FOR SURFACES

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Venue: Zoom Meeting 960 4727 5610, password: SCMS

Abstract: Assuming K_X is nef and big or ample, we study the behavior of |mK_X| when the Cartier index of K_X is not bounded. Especially we are interested in when |mK_X| is free in codim 1 (does not have fixed part). we show that in general there is no uniform m to ensure |mK_X| free in codim 1 (for klt variety) unless we have some extra assumption on the singularities. More precisely, we show that |mK_X| defines a birational map and has no fixed part for some bounded positive integer m for any 1/2-lc surface X such that K_X is big and nef. For every positive integer n>2, we construct a sequence of projective surfaces X_{n,i}, such that K_{X_{n,i}} is ample, mld(X_{n,i})>1/n for every i, the limit of mld(X_{n,i}) is 1/n, and for any positive integer m, there exists i such that |mK_{X_{n,i}}| has non-zero fixed part. This is a joint work with Jihao Liu.