Title:
Degenerations of smooth canonically polarized surfaces: towards a compact moduli space

Abstract:
The main goal of this series of lectures is to discuss the main issues related to compactifying the moduli space of smooth canonically polarized surfaces (and higher dimensional varieties). This includes introducing and studying the basic properties of the singularities with which one must work. These singularities include non-normal versions of better known singularities that appear in the minimal model program. It also includes the discussion of the kind of degenerations one allows in constructing the moduli space and the closely related issue of defining the appropriate moduli functor. Time permitting some recent results related to this question will also be reviewed.

Some references:
J. KOLLÁR and S. MORI: Birational geometry of algebraic varieties, Cambridge Tracts in Mathematics, vol. 134, Cambridge University Press, Cambridge, 1998, With the collaboration of C. H. Clemens and A. Corti, Translated from the 1998 Japanese original. MR1658959 (2000b:14018).

J. KOLLÁR ET AL.: Flips and abundance for algebraic threefolds, Societe Mathematique de France, Paris, 1992, Papers from the Second Summer Seminar on Algebraic Geometry held at the University of Utah, Salt Lake City, Utah, August 1991, Asterisque No. 211 (1992). MR1225842 (94f:14013)

J. KOLLÁR and N. I. SHEPHERD-BARRON: Threefolds and deformations of surface singularities, Invent. Math. 91 (1988), no. 2, 299-338. MR922803 (88m:14022)

S. J. KOVÁCS: Young person's guide to moduli of higher dimensional varieties, Proceedings of the AMS Summer Research Institute held at the University of Washington, Seattle, WA, July 25-August 12, 2005, Proceedings of Symposia in Pure Mathematics, American Mathematical Society

M. REID: Young person's guide to canonical singularities, Algebraic geometry, Bowdoin, 1985 (Brunswick, Maine, 1985), Proc. Sympos. Pure Math., vol. 46, Amer. Math. Soc., Providence, RI, 1987, pp. 345-414. MR927963 (89b:14016).