

*Department of Mathematics,  
University of California San Diego*

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# Advancement to Candidacy

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UCSD

## Deformation invariance of plurigenera in analytic and algebraic geometry

**Abstract:**

In the classification theory of higher dimensional algebraic varieties a central role is played by the canonical divisor  $K_X$  and its multiples. A famous theorem of Y. T. Siu states that if  $\pi : X \rightarrow T$  is a smooth projective family of varieties, then the plurigenera of the fibres  $\{h^0(X_t, mK_{X_t})\}_{m \geq 0}$  are constant in  $t$ . Despite being an algebraic problem, Siu's proof employs methods which are essentially analytic in nature. After giving an overview of the techniques involved, we outline a path to a possible algebraic proof, based on a reduction to the general type case via the Iitaka fibration.

Advisor: James McKernan

**Monday, May 22, 2017**

**11:00 AM**

**AP&M B412**

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