

# Techniques for the Analytic Proof of the Finite Generation of the Canonical Ring

Yum-Tong Siu\*

## CONTENTS

1. Introduction	177
2. Reduction of finite generation of canonical ring to achievement of stable vanishing order	182
3. Decomposition of closed positive $(1, 1)$ -currents and their modified restrictions to hypersurfaces .	186
4. Discrepancy subspaces	188
5. Construction of pluricanonical sections with fixed sufficiently ample twisting	195
6. Subspaces of minimum additional vanishing for the second case of the dichotomy	206
7. Big sum of a line bundle and the canonical line bundle	214
Appendix: Multiplier ideal sheaves of Kohn and Nadel as defined by crucial estimates	214
References	217

## 1. Introduction

This article is an exposition of the analytic proof of the finite generation of the canonical ring for a compact complex algebraic manifold of general type [Siu 2006, 2007, 2008]. An algebraic proof was given in [Birkan-Cascini-Hacon-McKernan 2006].

---

\*Partially supported by Grant 0500964 of the National Science Foundation.