Mathematics > Algebraic Geometry

A canonical linear system associated to adjoint divisors in characteristic $p > 0$

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(Submitted on 19 Jul 2011 (v1), last revised 23 Aug 2012 (this version, v4))

Suppose that X is a projective variety over an algebraically closed field of characteristic $p > 0$. Further suppose that L is an ample (or more generally in some sense positive) divisor. We study a natural linear system in $|K_X + L|$. We further generalize this to incorporate a boundary divisor Δ. We show that these subsystems behave like the global sections associated to multiplier ideals, $H^0(X, \mJ(X, \Delta) \tensor L)$ in characteristic zero. In particular, we show that these systems are in many cases base-point-free. While the original proof utilized Kawamata-Viehweg vanishing and variants of multiplier ideals, our proof uses test ideals.

Comments:	15 pages, improved exposition and typos corrected, to appear in Journal f\"ur die reine und angewandte Mathematik
Subjects:	**Algebraic Geometry (math.AG)**; Commutative Algebra (math.AC)
MSC classes:	14F18, 13A35, 14B05
Cite as:	**arXiv:1107.3833 [math.AG]**
	(or **arXiv:1107.3833v4 [math.AG]** for this version)

Submission history

From: Karl Schwede [view email]
[v1] Tue, 19 Jul 2011 19:59:02 GMT (21kb)
[v2] Thu, 21 Jul 2011 19:02:34 GMT (22kb)
[v3] Mon, 12 Sep 2011 17:44:13 GMT (23kb)
[v4] Thu, 23 Aug 2012 19:53:32 GMT (23kb)

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