The handle http://hdl.handle.net/1887/36589 holds various files of this Leiden University dissertation.

**Author:** Zhuang, Weidong  
**Title:** Symmetric diophantine approximation over function fields  
**Issue Date:** 2015-12-03
Acknowledgements

This dissertation is the product of my research at Leiden University. Along this way, many people have helped and encouraged me. I would like to express my gratitude to all of them.

My deepest debt of gratitude goes to Jan-Hendrik Evertse, for leading me to this fantastic mathematical subject, for his help with both my research and my life, and for his patience and kindness to me.

I also wish to thank Peter Stevenhagen for being my promotor and all his help and support since I came to Leiden five years ago.

I sincerely thank the promotion committee for their willingness and time to read my thesis, and for all their comments, suggestions and questions. Many thanks to Frits Beukers, Yann Bugeaud, Kálmán Győry, Aad van der Vaart and Julie Tzu-Yueh Wang. I thank Leiden University and NWO for supporting my PhD research.

In these years at the Mathematical Institute, I have benefited a lot from those brilliant brains of the algebra and number theory group. It has been an honor to work with them. I would like to thank Robin de Jong for his generous help since I started my master studies, as well as being a member of the promotion committee with valuable comments. I also want to express my gratitude to Bas Edixhoven for all his kind help since my first day in Leiden and for the delicious food and wine he offered us. Also, many thanks to Hendrik Lenstra, Ronald van Luijk, Bart de Smit and Lenny Taelman for encouraging, motivating and inspiring me.

There are always people coming and leaving. Many colleagues at Leiden
University have been an excellent source of support. I want to express my
deep gratitude to Junjiang Liu for both the inspiring academic discussions
held and the cheerful memories shared. I want to express my gratitude to
Michiel Kosters and Dino Festi for all their generous help. I also want to
thank Maarten Kampert for his help with many practical issues. Further,
I would like to thank my fellow colleagues Athanasios Angelakis, Samuele
Anni, Mai Hoang Bien, Owen Biesel, Guilin Chen, Iuliana Ciocanea, Maarten
Derickx, Martin Djukanovic, Krzysztof Dorobisz, Fengnan Gao, Ziyang Gao,
Alberto Gioia, Albert Gunawan, David Holmes, Abtien Javanpeykar, Ariyan
Javanpeykar, Jinbi Jin, Pinar Kilicer, Chloe Martindale, Djordjo Milovic,
Maxim Mornev, Rachel Newton, Carlo Pagano, Rene Pannekoek, Andrea
Siviero, Mima Stanojkovski, Erik Visse, Qijun Yan, Chao Zhang, Yan Zhao
and Wouter Zomervrucht for the great time we spent together.

Special thanks to Junyi Xie for the long-lasting friendship. I also thank
my friends Xiaohua Ai, Xueyu Chen, Lie Fu, Jacopo Griggio, Benben Liao,
Shengfa Miao, Depeng Zhao and Bo Zhou in Leiden and Paris for those good
memories.

I sincerely thank Yvonne Groenewegen, Liesbeth den Hollander, Martin
Lübke and Kathelijne Smits for their great help with administration and visa
issues.

Last but not least, I want to express my appreciation for my beloved wife
Yana Zuo. Her love, patience and support have led me this far and she is
still making me a better person everyday. My gratitude also goes to our son
Zhida who has brought a new dimension to my life. I thank my parents and
parents-in-law for their generous help with many things.

There have been innumerable people who have helped me. I would like to
express my sincere thanks to all the people and Leiden University for being
part of my wonderful life in the last few years.
Curriculum Vitae

Weidong Zhuang was born on November 23, 1983. He enrolled as a student in mathematics in University of Science and Technology of China in 2005. He obtained his bachelor’s degree in 2009 and was admitted in the Erasmus-Mundus ALGANT joint master program. He studied in Université Paris-Sud 11, Orsay for the first year and went to Leiden for his second year. He wrote his master thesis ”Hasse-Weil Zeta-Function in a Special Case” under the supervision of Professor M. Harris. He received his master’s degree in 2011 and started his PhD project, supported by NWO, under the supervision of Dr. Jan-Hendrik Evertse in Leiden University.

Weidong Zhuang married Yana Zuo in 2012. Their son Zhida was born in 2014.
Index

$C'(n)$, 27
$C(J)$, 85
$C(n)$, 27
$C_{pqij}$, 85
$D(F)$, 11
$D_i$, 54
$D_{B/A}$, 15
$D_{O_i/O_n}$, 54
$F_U$, 12
$G_{\nu}$, 48
$H(F)$, 121
$H(f)$, 130
$H(x_1, \ldots, x_n)$, 24
$H^{*}(P)$, 57
$H^{*}(x_1, \ldots, x_n)$, 24
$H_A(K^n)$, 20
$H_A(x)$, 20, 22
$H_K(x)$, 17
$H_L(F)$, 121
$H_L(x_1, \ldots, x_n)$, 24
$H^*_L(x_1, \ldots, x_n)$, 24
$H_S(F)$, 53
$H_S(x)$, 17
$H_T(F)$, 121

$R_T(x_1, \ldots, x_n)$, 24
$K$, 11
$L$, 14
$L[X_1, \ldots, X_n]_{\text{lin}}$, 47
$L_{\omega}$, 14
$L_{ijkl}$, 74
$M$, $M'$, 78
$M_K$, 13
$N_{L/K}$, 15
$N_{L/K}(P)$, 17
$R$, 78
$R(F,G)$, 12
$R_{\nu}$, 16
$R^*_{\nu}$, 16
$R_{L/K_\nu}$, 70
$S$, 13
$S$-adeles, 19
$S$-integer, 14
$S$-reduced, 54
$S$-unit, 14
$S^{(1)}$, 28
$S^{(2)}$, 28
$T$-units, 21
$W_z(f_1, \ldots, f_n)$, 29
$W_{pq}$, 82
Index

X-mononic, 107
Δ_S(f), 129
Δ_T(ξ, η), 133
Δ_{ij}, 74
GL(2, O_S)-equivalent, 53
Gal(L/K), 18
Gal(\overline{K_\nu}/K_\nu)-symmetric, 48
\|A_\nu\|_\nu, 19
\|x\|_\nu, 16
Aut(F), 103
deg, 20
div_A(x), 20
GL_n(\mathbb{A}_S), 19
λ_i, 45
\mathbb{A}_S, 19
A(ν), 18
C, 44
C_\nu, 43
E(ω_1|ν), 18
O_S, 14
O_S^\times, 14
O_T, 21
O_T^\times, 21
p, 15
ν, 13
ν(x), 16
ν_\infty, 13
ω, 14
φ_{pq}, 81
σ(P), 17
ϖ, 139

|P|_S, 57
|P|_\nu, 17
|\cdot|_S, 14
|\cdot|_T, 15
|\det(A)|_S, 19
φ, 15
c(m, n, S, L), 124
c(m, n, S, L_1, L_2), 127
c_4(n), 130
d/dz, 29
d_i, 54
e(ω|ν), 15
g_ν, 18
h_A(x), 20
k, 11
t, 11
admimissble tuple, 61
Castelnuovo’s Inequality, 118
convex symmetric, 44
convex symmetric body, 43
cross ratio, 100
Dedekind domain, 15
derivation, 29
discriminant, 11
divisor, 20
Galois group, 18
Gauss’ lemma, 17
Liouville-type inequality, 134
Mason’s lemma, 25

normalized valuation, 14, 15

product formula, 13

related, 107

resultant, 12

Riemann-Hurwitz formula, 69

successive minimum, 45

tamely ramified, 15

Thue-Mahler equation, 122

 twisted height, 20

unit equation, 101

valuation, 13

Wronskian, 29