

A CIMPA research school on
Algebra, arithmetic and application
Institut de Mathématiques et de Sciences Physiques,
Dangbo, Bénin
June, 12-24 2022
Course by Michel Waldschmidt:
Diophantine approximation

First course :

Approximation to a real number by rational numbers, asymptotic and uniform rational approximation. Dirichlet's Theorem.

[W 2012] Section 1.1 pages 5 - 9

Continued fraction expansion

[W2010] Continued fractions pages 60 - 70

Slides:

Diophantine equations and Diophantine approximations

<https://webusers.imj-prg.fr/~michel.waldschmidt/articles/pdf/EquaDioEn.pdf>

Continued fractions: introduction and applications.

<https://webusers.imj-prg.fr/~michel.waldschmidt/articles/pdf/ContinuedFractions.pdf>

Second course: Brahmagupta Pell Fermat Equation

[W2010] Pell Equation pages 71 - 103

[W2015] Section 3 pages 12 - 40

Slides:

On the Brahmagupta-Fermat-Pell Equation.

<https://webusers.imj-prg.fr/~michel.waldschmidt/articles/pdf/BrahmaguptaFermatPellEnV1.pdf>

Third course:

Approximation to algebraic numbers, Liouville, Thue--Siegel-Roth, Schmidt subspace Theorem

[W 2011] pages 1 - 3

[W 2012] pages 7 - 9

Lower bounds for $|a^{b_1} \dots a^{b_m} - 1|$, abc conjecture

[W 2000] Section 1.2 pages 7 - 13

Slides:

On the abc conjecture and some of its consequences.

<https://webusers.imj-prg.fr/~michel.waldschmidt/articles/pdf/abcEn.pdf>

Fourth course:

Damien Roy. Parametric geometry of numbers. Slides for a plenary talk at CNTA XV, Université LAVAL, 15 July 9--13, 2018.

<https://archimede.mat.ulaval.ca/CNTA2018/Plenary.pdf>

https://mysite.science.uottawa.ca/droy/talks/CNTA_2018_Beamer.pdf

References:

[W 2000] [Diophantine Approximation on Linear Algebraic Groups;](#)

[Grundlehren der Mathematischen Wissenschaften](#) 326. Springer-Verlag, Berlin-Heidelberg, 2000.

<https://webusers.imj-prg.fr/~michel.waldschmidt/articles/pdf/dalag.pdf>

[W 2010] Diophantine approximation, irrationality and transcendence

<https://webusers.imj-prg.fr/~michel.waldschmidt/articles/pdf/IMPA2010.pdf>

[W 2011] Diophantine Approximation and Diophantine Equations

<https://webusers.imj-prg.fr/~michel.waldschmidt/articles/pdf/HRI2011.pdf>

[W 2012] [Recent advances in Diophantine approximation](#)

[Number theory, Analysis and Geometry: In memory of Serge Lang,](#)

Springer Science+Business Media, LLC 2012, 659-704.

[Number Theory Math arXiv:0908.3973](#)

[Archive Ouverte hal-00407199](#)

<https://webusers.imj-prg.fr/~michel.waldschmidt/articles/pdf/miwLangMemorialVolume.pdf>

[W 2015] [Continued fractions \(unpublished manuscript, 46 pages\).](#)

<https://webusers.imj-prg.fr/~michel.waldschmidt/articles/pdf/ContinuedFractionsOujda2015.pdf>