

# An introduction to pluripotential theory

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Pluripotential theory has been an indispensable tool in various research fields, especially, in complex geometry and complex dynamics. A main object of this theory is the notion of plurisubharmonic function which is a higher dimensional generalization of subharmonic functions on complex plane. The aim of this course is to give rudiments of pluripotential theory providing readers a necessary background for advanced reading on this theory and its applications. It is designed as a Master course for one semester at the University of Cologne. Main references for the course are [1, 2, 3, 4, 5]. A minimal prerequisite is required. Students should have basic knowledge from the courses Complex Analysis, Linear Algebra, and Analysis I-III.

## References

- [1] J.-P. DEMAILLY, *Complex analytic and differential geometry*. <http://www.fourier.ujf-grenoble.fr/~demailly>.
- [2] —, *Analytic methods in algebraic geometry*, vol. 1 of *Surveys of Modern Mathematics*, International Press, Somerville, MA; Higher Education Press, Beijing, 2012.
- [3] L. HÖRMANDER, *Notions of convexity*, vol. 127 of *Progress in Mathematics*, Birkhäuser Boston, Inc., Boston, MA, 1994.
- [4] M. KLIMEK, *Pluripotential theory*, vol. 6 of *London Mathematical Society Monographs. New Series*, The Clarendon Press, Oxford University Press, New York, 1991. Oxford Science Publications.
- [5] T. RANSFORD, *Potential theory in the complex plane*, vol. 28 of *London Mathematical Society Student Texts*, Cambridge University Press, Cambridge, 1995.