

### Game Theory and the Infinity Laplacian

1. Introduction to game theory.
2. Mean Value Formula and Dynamic Programming Principle.
3. Viscosity solutions of the normalized infinity Laplacian.

### Optimization Equations, Transport, and Monge-Ampère

4. Monge's problem of *déblais-remblais*. Connection with Monge-Ampère equations.
5. Kantorovich's approach: Optimal plan vs. optimal map.
6. Applications to construction of antennas and reflectors.

## References

- [1] L.C. Evans; *Partial Differential Equations and Monge-Kantorovich Mass Transfer*, Current Developments in Mathematics 1997. (Updated version available at <https://math.berkeley.edu/~evans/Monge-Kantorovich.survey.pdf>)
- [2] P. Lindqvist; *Notes on the infinity Laplace equation*, SpringerBriefs in Mathematics, Springer 2016. (Available at arXiv:1411.1278v2 [math.AP])
- [3] G. De Philippis, A. Figalli; *The Monge-Ampère equation and its link to optimal transportation*, Bull. Amer. Math. Soc. (N.S.), 51(4):527–580 (2014). (Available at <http://www.ams.org/journals/bull/2014-51-04/S0273-0979-2014-01459-4/S0273-0979-2014-01459-4.pdf>)
- [4] J.D. Rossi; *Tug-of-war games and PDEs*, Proc. Roy. Soc. Edinburgh Sect. A 141 (2011) 319–369. 3, 33. (Available at [http://mate.dm.uba.ar/~jrossi/ToWandPDEs\(2\).pdf](http://mate.dm.uba.ar/~jrossi/ToWandPDEs(2).pdf))
- [5] C. Villani; *Topics in Optimal Transportation*, Graduate Studies in Mathematics 58, AMS 2003.