

BASICS'17 Summer School: Reference

1 Main Reference

The students will obtain a hardcopy of the lecture notes, and the PDF versions of the lecture notes will be online before the summer school starts. In the mean time, most scheduled topics of the summer school can be found in the following books and lecture notes:

- Fan Chung: Spectral Graph Theory. American Mathematical Society, 1997. The first 4 chapters can be downloaded at <http://www.math.ucsd.edu/~fan/research/revised.html>
- Luca Trevisan: Lecture Notes on Expansion, Sparsest Cut, and Spectral Graph Theory. <https://people.eecs.berkeley.edu/~luca/books/expanders.pdf>
- Nisheeth K. Vishnoi: $Lx = b$ Laplacian Solvers and Their Algorithmic Applications. <http://theory.epfl.ch/vishnoi/Lxb-Web.pdf>

2 Other References

Besides introducing the basics of spectral graph theory, the following references representing the recent advances will be discussed during the summer school.

- Joshua D. Batson, Daniel A. Spielman, Nikhil Srivastava: Twice-Ramanujan Sparsifiers. SIAM Review, 56(2): 315-334, 2014.
- James R. Lee, Shayan Oveis Gharan, Luca Trevisan: Multiway Spectral Partitioning and Higher-Order Cheeger Inequalities. Journal of the ACM, 61(6): 37:1-30, 2014.
- Yin Tat Lee, He Sun: Constructing Linear-Sized Spectral Sparsification in Almost-Linear Time. FOCS 2015: 250-269.
- Yin Tat Lee, He Sun: An SDP-Based Algorithm for Linear-Sized Spectral Sparsification. STOC 2017.
- Adam Marcus, Daniel A. Spielman, Nikhil Srivastava: Interlacing Families I: Bipartite Ramanujan Graphs of All Degrees. FOCS 2013: 529-537.
- Richard Peng, He Sun, Luca Zanetti. Partitioning Well-Clustered Graphs: Spectral Clustering Works! SIAM Journal on Computing, 46(2): 710-743, 2017.
- Daniel A. Spielman, Nikhil Srivastava: Graph Sparsification by Effective Resistances. SIAM Journal on Computing, 40(6): 1913-1926, 2011.