TOPICS

- Besicovich covering lemma.

  E. M. Stein and G. Weiss, *Introduction to Fourier analysis on Euclidean spaces.*
  Princeton University Press, Princeton, N.J., 1971.

- Theorems of Carethedory–Toeplitz, Bochner, ...

  P. Lax, *Functional Analysis*, Wiley-Interscience, New York, 2002.

- Basic Function Theory in multiply connected domains.

  W. Rudin, Analytic functions of Class H_p, *Trans. Amer. Math. Soc.* **78**, (1955), 46–66.
  S. D. Fisher, *Function theory on planar domains.* John Wiley and Sons, Inc., New York, 1983.

- Mountain pass theorem and solutions of $-\Delta u - |u|^p u = -u$ in $\mathbb{R}^n$.

  See §8.5 of L. C. Evans, *Partial differential equations.* Graduate Studies in Mathematics, 19. American Mathematical Society, Providence, RI, 1998. (Note: the existence of solutions to this problem implies the existence of solitons for focusing NLS.)

- Spherical harmonics.

  E. M. Stein and G. Weiss, *Introduction to Fourier analysis on Euclidean spaces.* Princeton University Press, Princeton, N.J., 1971.

- Bourgain's L^2-maximal theorem.

  Lemma 3 of J. Bourgain, On high-dimensional maximal functions associated to convex bodies. *Amer. J. Math.* **108** (1986), 1467–1476.

- Köbe one-quarter, distortion, and growth theorems.

J. B. Conway, *Functions of one complex variable. II.* Graduate Texts in Mathematics, 159. Springer, 1995

P. Duren, *Univalent functions.* Grundlehren der Mathematischen Wissenschaften, 259. Springer-Verlag, New York, 1983.

G. Lawler, *Conformally invariant processes in the plane.* American Mathematical Society, Providence, RI, 2005.

J. B. Garnett, D. E. Marshall, *Harmonic measure.* Cambridge Univeristy Press, Cambridge, 2005.

- Classical Fredholm theory.

P. Lax, *Functional Analysis*, Wiley-Interscience, New York, 2002.
H. Widom, *Lectures on integral equations*, Van Nostrand, 1969.

- Weyl's Theorem bounding matrix eigenvalues.

H. Weyl, Inequalities between the two kinds of eigenvalues of a linear transformation. *Proc. Nat. Acad. Sci. U. S. A.* **35** (1949), 408–411.

- Loewner's (matrix monotone) theorem.

R. Bhatia, *Matrix analysis.* Springer, 1997.

- The Loewner equation.

Chapter 4 of G. Lawler, *Conformally invariant processes in the plane.* American Mathematical Society, Providence, RI, 2005.
Chapter 6 of L. V. Ahlfors, *Conformal invariants, Topics in geometric function theory*, McGraw-Hill, New York, 1973.

- Linnik's solution of Waring's problem.

Chapter 11 of M. Nathanson, *Elementary methods in number theory.* Graduate Texts in Mathematics, 195. Springer-Verlag, New York, 2000.

- Besicovitch sets and the disk multiplier.

Chapter X of E. M. Stein, *Harmonic analysis: real-variable methods, orthogonality, and oscillatory integrals.* Princeton University Press, Princeton, NJ, 1993.

C. Fefferman, The multiplier problem for the ball. *Ann. of Math.* **94** (1971).

- Spherical maximal functions.

Chapter XI of E. M. Stein, *Harmonic analysis: real-variable methods, orthogonality, and oscillatory integrals.* Princeton University Press, Princeton, NJ, 1993.

- Uniform distribution: Weyl's Criterion, Van der Corput's Difference Theorem, and applications.

L. Kuipers and H. Niederreiter, *Uniform distribution of sequences.* Wiley-Interscience, New York-London-Sydney, 1974.

M. Drmota and R. Tichy, *Sequences, discrepancies and applications.* Lecture Notes in Mathematics, 1651. Springer-Verlag, Berlin, 1997.

A. Iosevich, Curvature, combinatorics, and the Fourier transform. *Notices Amer. Math. Soc.* **48** (2001), 577–583.

- Poincaré inequalities.

L. C. Evans, *Partial differential equations.* Graduate Studies in Mathematics, 19. AMS, Providence, RI, 1998.

E. Lieb and M. Loss, *Analysis.* Second edition. Graduate Studies in Mathematics, 14. AMS, Providence, RI, 2001.

- Pick-Nevanlinna interpolation.

J. B. Garnett, *Bounded analytic functions.* Revised first edition, Springer Verlag, New York, 2006.

- The Littlewood conjecture.

  O. C. MeGeehee, L. Pigno, B. Smith, Hardy's inequality and the L^1 norm of exponential sums, *Annals of Math.* **113** (1981), 613-618.

  I. Glicksberg, A remark on the preceding paper, *Annals of Math.* **113** (1981), 619-620.

- Carleson's almost everwhere convergence theorem.

  C. Thiele, *Wave Packet Analysis.* American Mathematical Society, CBMS Regiional Conference Series in Mathematics, **105** (2005).

  M. Lacey, C. Thiele, A proof of boundedness of the Carleson operator, *Math. Res. Lett.*, **7**, (2000), 361-370.

- A Littlewood-Paley inequality for arbitrary intervals.

  J. L. Rubio de Francia, A Littlewood-Paley inequalty for arbtrary intervals, *Rev. Mat. Iberoamericana* **1** (1985), no.2, 1-14.

- Martingales and harmonic measures.

  Appendix F of J. B. Garnett, D. E. Marshall *Harmonic Measure*, Cambridge University Press, 2006.

- The Nash-Moser interation scheme.

  T. Tao, The Nash-Moser iteration scheme, preprint, 8 pages.

- Lipschitz maps.

  Chapter 7 of P. Mattila *Geometry of sets and measures in Euclidean spaces*, Cambridge University Press, 1995.

- Cauchy integrals on Lipschitz curves.

  R. Coifman, P. Jones, S. Semmes, Two elementary proofs of the L^2 boundedness of Cauchy integrals on Lipschitz curves, *Jour. Amer. Math. Soc* **2**, 1989, 553-564.

  M. S. Melnikov, J. Verdera, A geometric proof of the L^2 boundedness of the Cauchy integral on Lipschitz curves, *Int. Math. Res. Notices* **7**, (1995)

325-331.