PMATH 810, Winter 2015

Talk Topics

1. A simple proof of the existence of the Haar integral on locally compact abelian groups. A. Izzo, *Proc. Amer. Math. Soc.*, 115 (1992), no. 2, 581–583.

2. Invariant measures on homogeneous spaces G/H (H non-normal). Reiter and Stegeman, *Classical Harmonic Analysis and Locally Compact Groups*, section 8.1.

3. Cohen's factorization theorem: for any G module $\mathcal{X}$, and ξ in $\mathcal{X}$, there are f in $L^1(G)$ and ξ' in $\mathcal{X}$ such that $\xi = f \cdot \xi'$. Bonsall and Duncan, *Normed Algebras*, section 1.11.

4. Ideals in $L^1(G)$ for compact G. Hewitt and Ross, *Abstract Harmonic Analysis II*, (38.13).

5. Idempotent measures on compact abelian groups. Dunkl and Ramirez, *Topics in Harmonic Analysis*, chapter 6, section 2.

6. Idempotent probability measures on locally compact groups. J. Pym, *Pacific J. Math.* 12 (1962) 685–698; using J. Wendel, *Proc. Amer. Math. Soc.* 5 (1954), 923–929.

7. Free groups in SO(3) and SU(2). Hoffman and Morris, *The Structure of Compact Groups*, pps. 280-282.

8. Structure theory for abelian groups. Rudin, *Fourier analysis on groups*, sections 2.3 and 2.4.

9. Metrizability of locally compact groups, Hewitt and Ross, *Abstract Harmonic Analysis I*, (8.1)–(8.6).

10. Positive definite functions are of the form $\langle \xi | \pi(\cdot)\xi \rangle$. Folland, *A Course in Abstract Harmonic Analysis*, pps. 76–79.

11. Paradoxical decompositions and the Banach-Tarski paradox. V. Runde *Lectures on Amenability*, section 0.1.

12. Unitarizability of bounded representations of amenable groups; automatic unitarizability of representations of compact groups. Greenleaf *Invariant Means on Topological Groups*, §3.4

13. Day's fixed-point theorem, charcterizing amenable groups. Greenleaf *Invariant Means on Topological Groups*, Theorem 3.3.1

14. Means on abelian discrete semigroups, Hewitt and Ross, *Abstract Harmonic Analysis I*, (17.1)-(17.5)