PMATH 822, FALL 2006

Talk Topics

Texts: [ER] *Operator Spaces* by Effros and Ruan,
[P1] *Introduction to Operator Space Theory* by Pisier,
[P2] *Similarity Problems and Completely bouned Maps* by Pisier,
[Pa] *Completely Bounded Maps and Operator Algebras* by Paulsen.

1. Complete approximation property. [ER] 197–203.
2. Paulsen's 2×2-matrix trick: deriving the structure theorem of completley bounded maps from Stinespring's Theorem. [ER] 86–89.
3. Completely bounded multipliers on groups. P. Jolissaint, *Colloq. Math.* 63, no.2, 311–313; secondarily [P1] 151–153.
4. Haagerup's solution to the similarity problem for cyclic representations of C*-algebras. [P2] 124–131.
5. Injective envelopes. [ER] 106–116, or [Pa] 206–216.
6. Haagerup's theory of decomposbale maps. [ER] 93–98.
7. Exactness of operator spaces. [P1] 285–288; or [ER] 260–268.
8. Examples of non-exact operator spaces. [ER] 98-101 & 268–274. (Will require someone to volunteer a lecture on each prior topic.)
9. Blecher-Paulsen factorisation and application to matrix-valued analytic functions and matices over C*-algebras. [P1] 384–388.
10. Basic theory of Hilbert modules form an operator-space perspective. See D. Blecher and C. Le Merdy, *Operator algebras and their modules*, §8.2 (select topics, with suitable definitions form §8.1 given in passing); also [Pa] 201–204.
11. Any reasonable proposal, at my approval.

Please tell me as soon as you've chosen a topic; these will be decided on a first-come, first serve basis.

Talks should be about 45 minutes in length. Obviously, with some topics, detailed proofs will not be possible, hence the onus is to produce an interesting talk with relevant and important details. I will be expecting a write-up, which may be informal, with more detailed proofs – it may be handed-in after your talk.

I will book time slots in for Dec. 3–6 & Dec. 10–13 for the talks; please let me know which days are good/bad for you.