

TMA4230 FUNCTIONAL ANALYSIS, WEEK 12

LAST WEEK: Last week I had to cancel the Thursday lecture, but we did manage to cover cover Section 9.2–9.3 in the Friday lecture.

- Spectral properties of bounded self-adjoint linear operators (Section 9.2).
- Positive operators (Section 9.3).

THIS WEEK: Next week we will continue on Chapter 9. My aim is to cover Section 9.4 about square roots of positive operators, Section 9.5–9.6 which deals with projection operators, Section 9.7 which is about spectral families and perhaps parts of Section 9.8 which deals with the spectral family of a bounded self-adjoint linear operator

- Square roots of positive operators (Section 9.4).
- Projection operators (Section 9.5–9.6).
- Spectral families (Section 9.7).
- The spectral family of a bounded self-adjoint linear operator (Section 9.8).

NEXT WEEK: Next week Takeshi Katsura is visiting the department of mathematical sciences. Katsura is one of the world's leading experts in operator algebra (a subfield of functional analysis) and an excellent lecturer. I have therefore arranged with Katsura that he will give a guest lecture Friday (at the usual time and the usual place) about semiprojectivity and graph C^* -algebras. This will be a joint arrangement with the functional analysis operator algebra seminar. I will Thursday give an introduction to C^* -algebras in general and graph C^* -algebras in particular in order to prepare you for Katsura's talk.

We will then continue with the spectral theorem for self-adjoint operators the week after next week.

EXERCISES FOR NEXT WEEK: 9.4.8+9, 9.5.1, 9.5.3, 9.6.10+12+13.