



Exercises to the lecture ‘K-Theory of C^* -algebras’
Winter term 2019/2020

Sheet 1

to be discussed: Monday, 28 Oct + 11 Nov, 10:15, lecture hall HS IV

The aim is to understand $K^0(X) \cong K_0(C(X))$ for any compact space X . The source are the lecture notes of Christian Voigt.

Exercise 1. Read Ch. 1, Section 1 and 2. What are vector bundles and their morphisms? Definition of K^0 (Def. 1.5).

Exercise 2. Read Ch. 1, Section 3. What are projective modules? How to see them as direct summands in free modules? What is the link with idempotents?

Exercise 3. Read Ch. 1, Section 4. What is the theorem by Serre-Swan, what are the main ideas behind the proof? Mention also Thm. 1.18.

Exercise 4. Read Ch. 2, Section 2. What is the link between idempotents and projections? Summarize some properties.

Exercise 5. Prove Prop. 2.17: $K^0(X) \cong K_0(C(X))$