Exercises to the lecture

Mathematics for Physicists IV

Extra sheet

Exercise 1. (6 extra points)
Show that the limit of compact operators is compact. (Hint: use a diagonal agrument.)

Exercise 2. (4 extra points)
Let T be a multiplicator with a bounded sequence (a_n) on l^2, i.e., T is given by

$$T(t_1, t_2, \ldots) = (a_1 t_1, a_2 t_2, \ldots).$$

Show that T is compact if and only if $\lim_{n \to \infty} a_n = 0$.