2 How to prepare for the oral exam March 16 - 20, 2020

1) Review the home problems and bring them with you to the oral!

2) Read your lectures notes and the documents distributed as Doc-files (on Canvas) as specified below.

3) Read the following chapters (sections/pages) in the book by Weinberg (SW) (and Carroll's review (CR)). Sections etc not mentioned below are not included.

Note: If the Doc-file is mentioned first it is more important than the chapter in SW!

Doc1 and SW Chap 2: sections 1 - 9. Section 4.10 fits nicely here!

Doc2 and Chap 1: all sections.

Doc7 and Chap 3, all sections (skip page 74 and the top 1/3 of page 75) plus **Doc4**. Chap 4: sections 1 - 10 and **Doc8**.

Chap 5: all sections. Note that sect 5.4 is based on section 2.10 that is not included. If you need you can read e.g. pages 47 and 48 in sect. 2.10 and skip the rest. The stuff treated in sect. 5.4 is needed in Chap 15.

Chap 6: sections 1 - 10. Note that sect. 9 is out of date: the geometric approach is a crucial part of current research.

Chap 7: sections 7.1 and 7.4 - 7.6.

Chap 8: sections 1 - 4 in detail and sections 5 - 7 but concentrate on the physics and the main results (skip all details about various observations etc).

Black holes: read Carroll (ArXiv hep-th/9712019): Chapter 7, pages 180 - 192. The details of the calculations are not important.

Chap 9: not included but you should read the intro on page 211 and top of p. 212.

Doc13 and Chap 10: sections 1 - 3, in section 4 pages 260 - half of page 263, all of sect. 5 except "first example" (bottom p. 269 - bottom p. 271), sections 6 - 9 are not included. Have a look at **Doc10 (2 pages)** and **Doc12**.

Chap 11: Not included but you may read pages 191 - 192 in Carroll for a very brief orientation.

Chap 12: sections 1 - 4, sect. 5 is not included but you should know that vierbeins (or tetrads) are needed when dealing with fermions (spinors) in curved spacetimes. Read also your own notes from the lecture.

Chap 13: in section 1 only p. 375 - first half of p. 379 and on p. 380 only the derivation of eq 13.1.12, in sect 2 only pages 381 - 383, all of sect. 3, in sect. 4 only the result on last line, in sect. 5 pages 395 - 397 and pages 402 (from eq 13.5.27) - 404.

Doc15 and Chap 14: intro plus sections 1 - 3. The derivation and definition of the red-shift in section 14.3 is important!

Doc15 and Chap 15: intro plus section 1 and section 3, pages 481-482. (Section 15.2 is quite interesting but not included!)

Chap 16: not included