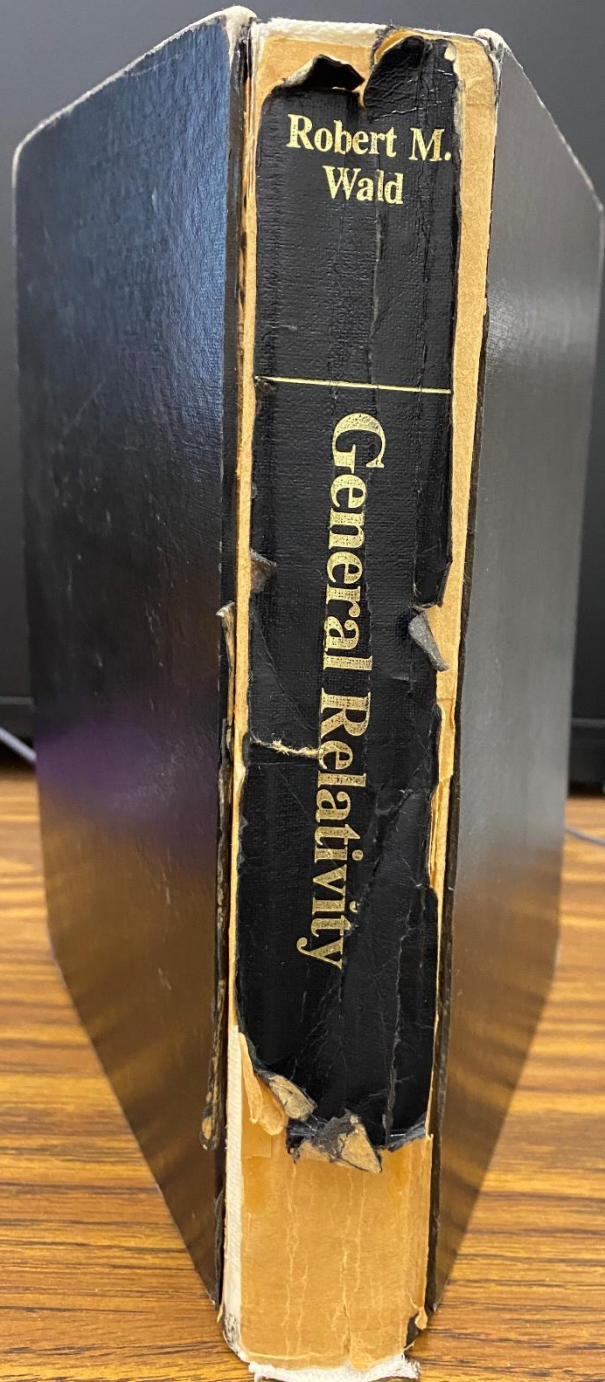
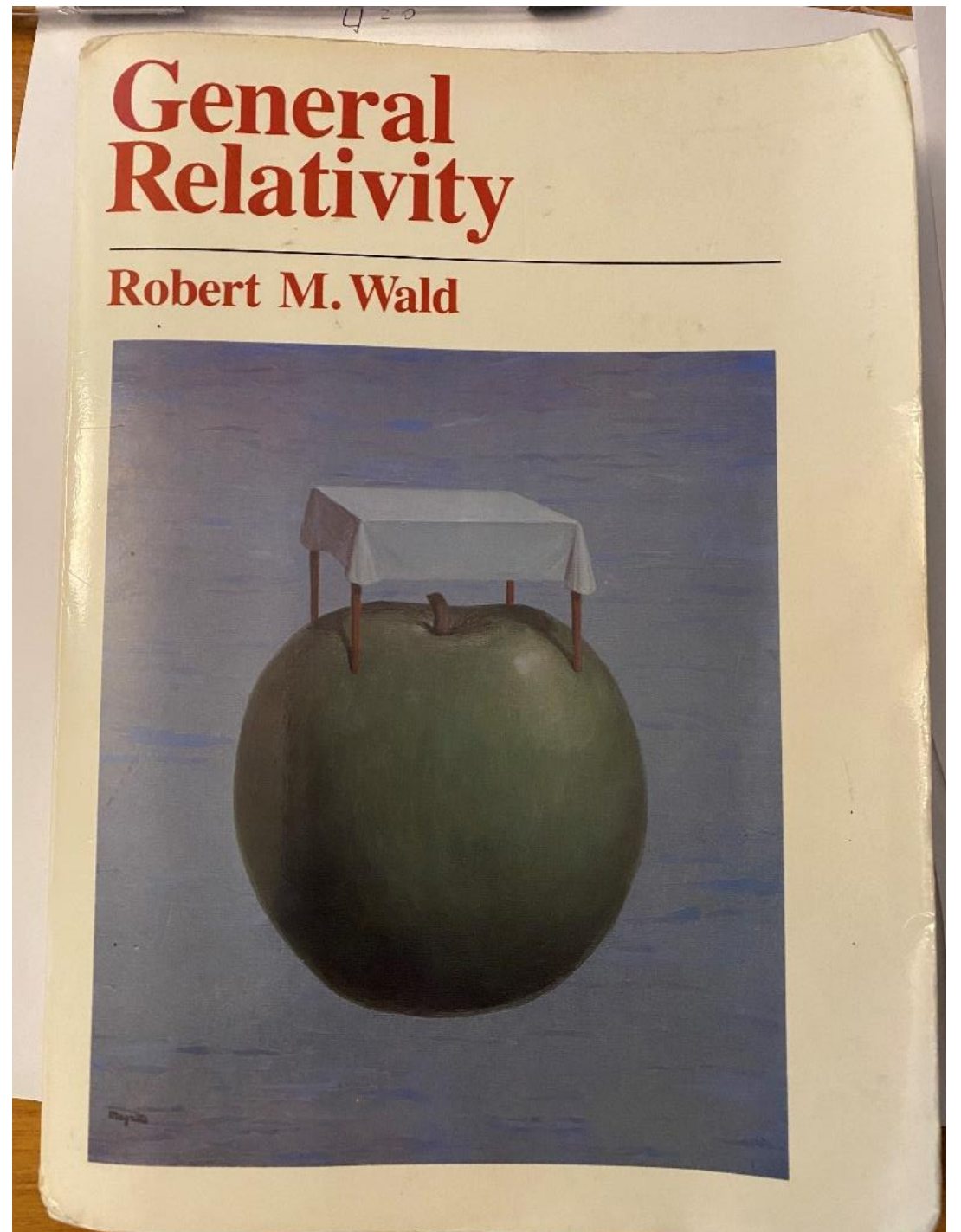


Bob Wald and  
*General Relativity*



of



- My encounter with Bob and his book
- Some phrases from the blurbs
- Some phrases from the introduction
- Structure and content of the book
- Conclusion

# My encounter with Bob and his book

- Learning general relativity
- Conversations with the author
- Checking equations
- Clarity in the foundations of physics

# Some phrases from the blurbs

- “Wald’s book is clearly the first textbook on general relativity with a totally modern point of view” S. Chandrasekhar
- “*General Relativity* is an excellent book, and it should fill a gap in the literature that has opened up, over the past several years, for a comprehensive and reasonably *up-to-date* graduate text in general relativity” R. Penrose
- “Modern” 40 years ago means containing the geometric insights of the global structure program about spacetime and particularly about black holes. It is important to preserve these insights.

# Some phrases from the introduction

- “both a text for graduate students and a reference book for researchers”
- “Problems are given at the end of each chapter... none which are, in my opinion, inordinately difficult (i.e. I think I can solve them).”
- “The influence of Robert Geroch should be apparent to readers familiar with his viewpoints on general relativity.”
- “Additional thanks are due to David Garfinkle for checking most of the equations.”

# Structure and properties of the book

- Abstract index notation
- Signature  $(-,+,+,+)$  (except for spinor chapter)
- Basic mathematical tools of the theory developed in first four chapters with additional mathematics in appendices or introduced as needed
- Basic topics of Schwarzschild and FLRW metrics treated in first part of the book with advanced topics treated in second part of the book
- Coordinate systems are never introduced but instead derived from symmetry group of the spacetime

- Global structure methods are introduced and used to derive the singularity theorems in an accessible way.
- The initial value formulation and asymptotic flatness are presented.
- Black holes are treated using both global methods and the properties of the Kerr metric
- Quantum gravity, but mostly quantum fields in curved spacetime, is treated in the last chapter.



The book is about the foundations of general relativity and therefore does not contain

- Detailed treatments of relativistic astrophysics
- Detailed treatments of relativistic cosmology
- Detailed treatments of the post-Newtonian approximation
- Numerical relativity

# Conclusion

- If you want a deep and thorough understanding of general relativity, then *General Relativity* by Bob Wald is the book you should read.