

Review Topics for Exam 1

Below you will find a list of topics that you will be responsible for knowing for Exam 1 as well as a list of topics that will not be covered. Remember that you are allowed a formula sheet for the test!

Although I've tried to cover everything, anything not explicitly mentioned is your responsibility

Chapter 1

Galilean relativity

Einstein postulates

Lorentz transformation

Time dilation

Length contraction

Relativistic addition of velocities

Doppler effect

Not covered: Spacetime diagrams

Chapter 2

Relativistic momentum

Relativistic Energy

Conservation of energy and momentum in special relativity

Invariant mass

Lorentz transformations for E, p

Not covered: general relativity

Chapter 3

Quantization of charge (qualitative)

Blackbody radiation

Stefan-Boltzmann law

Spectral characteristics

$u(\lambda)$, average energy \bar{E} , classical calculation of spectrum

Planck's law, quantization of energy, Planck's calculation of spectrum

Photo-electric effect

X-rays, Compton effect