EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

Mathematisch-
Naturwissenschaftliche
Fakultät
Fachbereich Mathematik
AB Geometrische Analysis und
Mathematische Relativitätstheorie

Sommersemester 2020

Vorlesung: Introduction to Special Relativity

Instructor: Dr. Edward T. Bryden
Start: Wednesday, April 15th 2020
Time and place: Wednesday, 10 c. t. to 12, in **C4H33**

Description

We will *deduce* the fundamental object of special relativity, the Minkowski metric, from two hypotheses: that all laws of physics are the same in any inertial frame, and that the speed of light is the same in any frame. From there we will explore the physical consequences of relativity such as length contraction, time dilation, and some favorite apparent paradoxes. As time permits, we will explore further consequences of the theory of relativity.

Requirements

Analysis 1, linear algebra, and a familiarity with Newtonian physics.

Literature

Einstein, A., *Relativity: the special and general theory*, public domain, 1920.

Moore, T.A., *Six ideas that shaped physics: unit R*, 2nd addition, McGraw-Hill, 2003.