Schuller's Lectures on Classical Mechanics

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Preface

These are lecture notes by Apoorv Potnis of the lecture series 'Theoretische Physik 1: Mechanik' (Theoretical Physics 1: Mechanics), given by **Prof. Frederic Paul Schuller** in 2014 at the Friedrich-Alexander-Universität Erlangen-Nürnberg. Prof. Schuller discusses classical mechanics in a mathematically rigorous fashion in this course. While the original lecture series is in German, these notes are in English and have been prepared using YouTube's automatic subtitle translation tool. The video lecture series is available at https://youtube.com/playlist?list=PLyIi3L2232Qo5t61tXfoL6vTW2akFQL-n&feature=shared and at https://www.fau.tv/course/id/272.

The source code, updates and corrections to this document can be found on this GitHub repository: https://github.com/apoorvpotnis/schuller_classical. The source code is embedded in this PDF. Comments and corrections can be mailed at apoorvpotnis@gmail.com.

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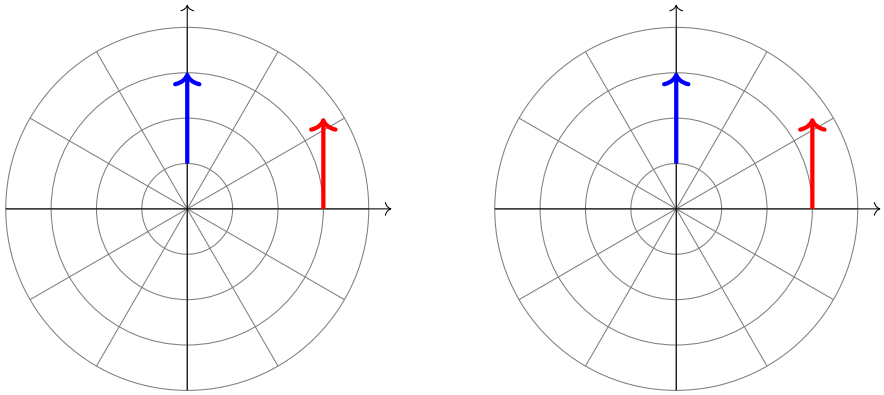
A Bird's Eye View of Physics

According to Prof. Schuller, the only goal of physics is to predict the future, nothing more and nothing less. Prof. Schuller then remembers Wittgenstein to remark that the goal of theoretical physics is to say all that can be said clearly. But in order to say things clearly, one needs the language of mathematics.



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Tensors and Tensor Fields

Bibliography

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[2] Valter Moretti. *Analytical Mechanics: Classical, Lagrangian and Hamiltonian Mechanics, Stability Theory, Special Relativity*. La Matematica per il 3+2. Springer Nature Switzerland AG, 2023. ISBN: 978-3-031-27611-8. Translated from Italian by Simon G. Choissi.