



## *Preparation course for the new Master Mathematical Physics Students 2018*

1st October - 12th October, 2018

### Schedule

Monday - Friday 9:30 - 12:00 - *Lecture*

- 1st October - 5th October in N14
- 8th October - 9th October in N15
- 10th October - 11th October in C6H10
- 12th October in N14

14:00 - 17:00 - *Exercise class and individual coaching* in C3H10

### Special dates

1st October 9:30 - 10:00 - *Welcome session* in N14

2nd October Starting at 19:00 - *Get-together* in Hankel Room

3rd October University closed due to public holiday

12th October 14:15 - 15:00 - *Official welcome of the new students* in N14

Starting at 15:00 - *Welcome reception with coffee, tea and cakes*  
in Hankel Room

### Contents

The aim of the course is to give an overview of basic tools in real analysis, measure theory and classical mechanics. First, we recall fundamental notions about topological and metric spaces. We introduce measure spaces and the concept of measurable function. We focus in particular on Lebesgue measure and Lebesgue spaces. Then we provide an introduction to Fourier analysis on  $d$ -dimensional torus and on  $\mathbb{R}^d$  (main properties and some applications to linear differential equations) and basic notions on Newtonian, Lagrangian and Hamiltonian mechanics (mathematical formalism to introduce the Newton's laws of motion, Euler-Lagrange equations and Hamilton's equations, guiding physical ideas behind it and some examples).

### Venue

All the lectures and the events will be held at the Department of Mathematics (Auf der Morgenstelle 10, building C-Bau, Tübingen).

- Rooms N14, N15 and C3H10 are on 3rd floor of building C-Bau.
- Hankel Room and room C6H10 are on 6th floor of building C-Bau.

### Contacts

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