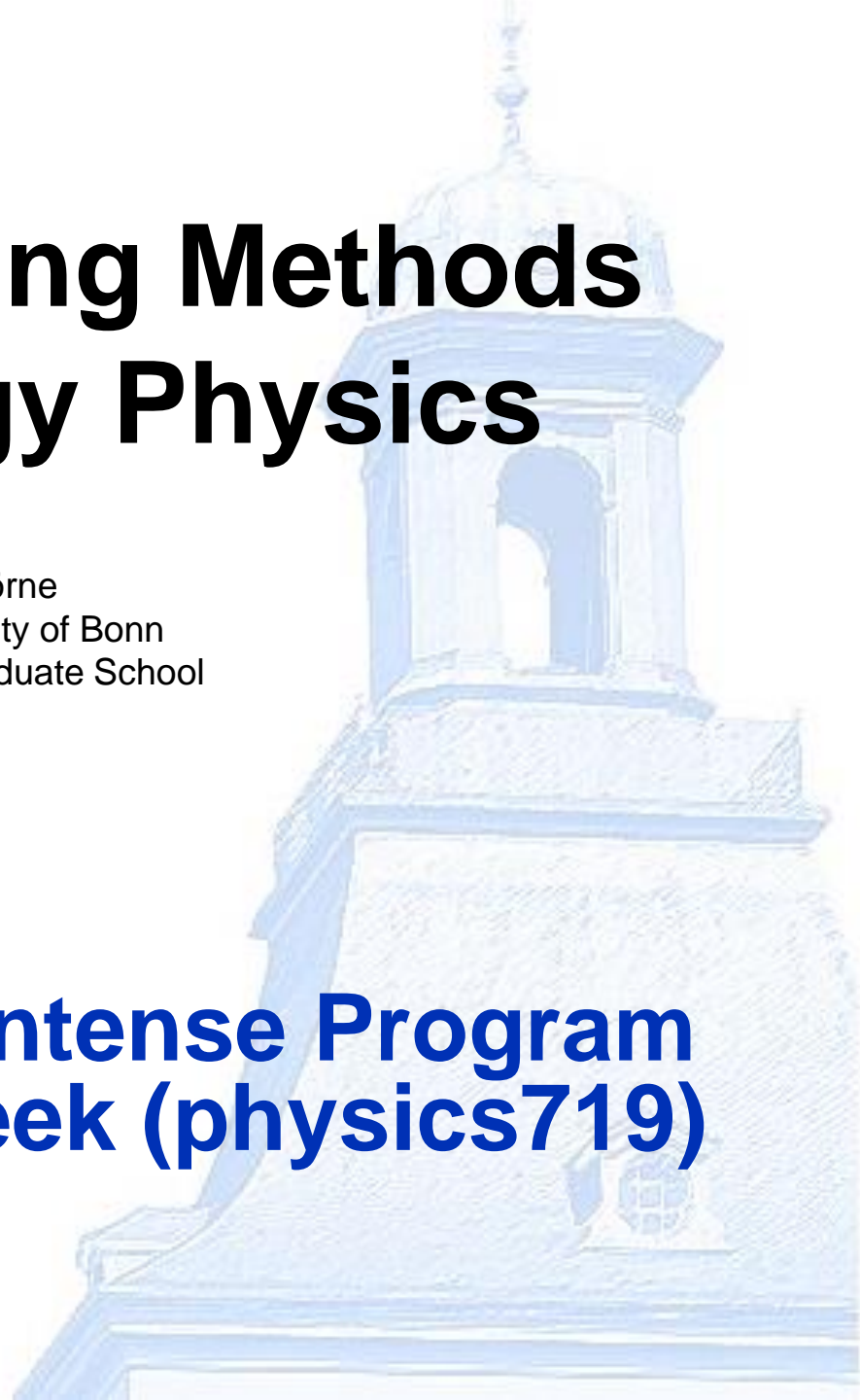


Machine Learning Methods in High Energy Physics

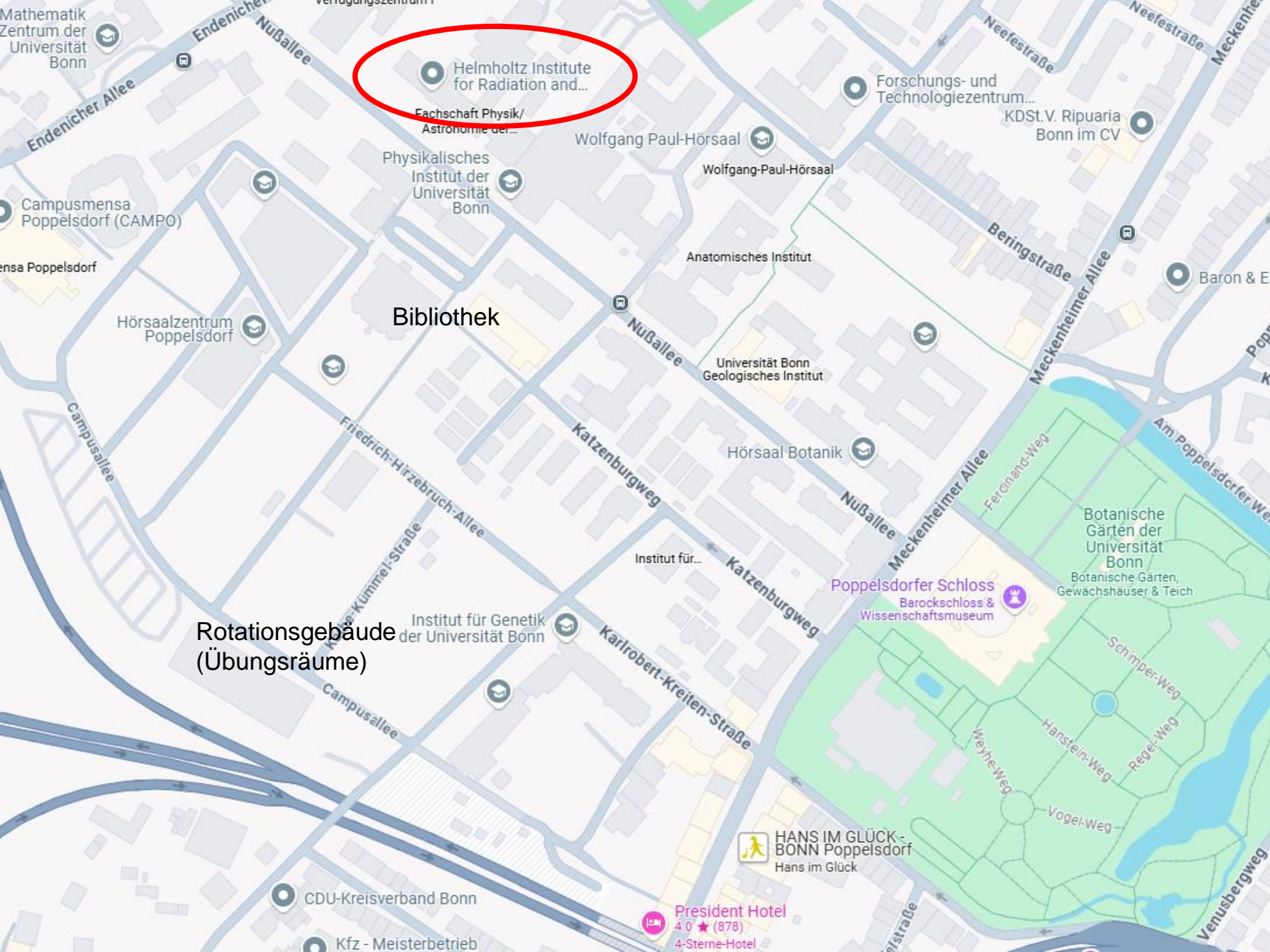
Dr. Eckhard von Törne
Physics Institute, University of Bonn
Lecturer Bonn-Cologne Graduate School

**Erasmus Blended Intense Program
BCGS Intensive Week (physics719)**



Course credit

- Participation in tutorials during intensive week, plus choice of
 - seminar talk (30 minutes)
 - written report (~5 pages)
- We will issue a certificate signed by our local Erasmus representative.



Helmholtz Institute for Radiation and...

Fachschaft Physik/
Astronomie der...

Physikalisches
Institut der
Universität
Bonn

Wolfgang Paul-Hörsaal

Wolfgang-Paul-Hörsaal

Anatomisches Institut

Universität Bonn
Geologisches Institut

Hörsaal Botanik

Institut für...

Institut für Genetik
der Universität Bonn

Poppelsdorfer Schloss
Barockschloss &
Wissenschaftsmuseum

Botanische
Gärten der
Universität
Bonn
Botanische Gärten,
Gewächshäuser & Teich

Rotationsgebäude
(Übungsräume)

CDU-Kreisverband Bonn

Kfz - Meisterbetrieb

President Hotel
4.0 ★ (878)
4-Sterne-Hotel

HANS IM GLÜCK -
BONN Poppelsdorf
Hans im Glück

Physikalisches Institut





Helmholtz-Institut

Getting to Nußallee



- Lectures are in Helmholtz institute (HISKP), Nußallee 14-16
 - Tutorials are also in Nußallee 12
- Directions to get to Nußallee 12, (Nußallee 14-16 is to the left of Nußallee 12)

https://www.pi.uni-bonn.de/en/institute/directions?set_language=en
- Public transportation info: <https://www.vrs.de/en/connections>
- Directions from Youth Hostel to Nußallee

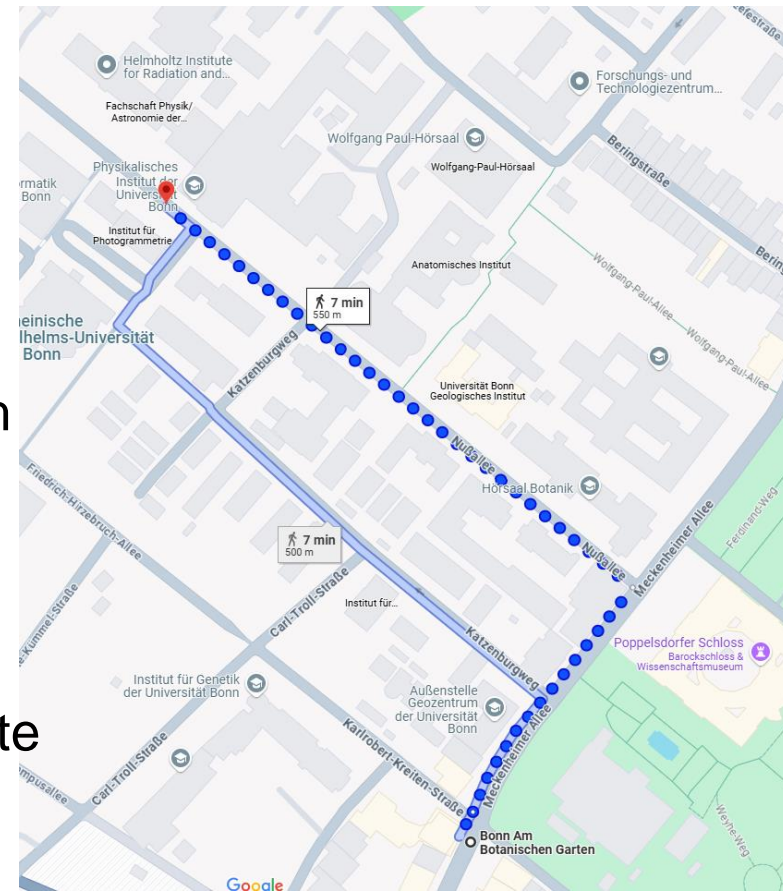
ab 08:50 **Jugendherberge, Bonn-Venusberg**

Linie 602 Richtung: Bonn Hbf

[Zwischenhalte anzeigen »](#)

an 09:02 **Am Botanischen Garten, Bonn-Poppelsdorf**

- Bus Stop Jugendherberge is in front of Youth Hostel and on same street side.
- Upon arrival at Bus Stop “Am Botanischen Garten”, 7 minute walk to lecture hall.
- Lectures start 9:15am.
- On Monday morning a member of our institute will pick you up at the youth hostel at 08:30 and ride the bus with you to the lecture hall.



7-day public transport ticket

- 7-day local transportation ticket valid for Bonn city limits
 - Price: 35.79 € online for “1B-ticket”
 - Valid for all trips within Bonn city limits
 - Would **not** cover trips from
 - Bonn/Cologne Airport
 - Siegburg/Bonn ICE train station
- How to get it: <https://www.vrs-ticketshop.de/en/WochenTicket.html>
- You need to have online-ticket plus valid ID with date-of-birth with you (or copy of it on phone).
- Public transportation info <https://www.vrs.de/en/connections>
- Single tickets are possible but more expensive and tedious
- You can only buy single tickets on the bus

Personalize your ticket

Area/ Starting area: *

Bonn (2600)

Area-/Target area: *

Bonn

via: *

PS1b direkter Weg

travel date: *

23.02.2025 - 01.03.2025



Schedule

Erasmus-Intensive Week 24.-28. February 2025

	Monday	Tuesday	Wednesday	Thursday	Friday
09:15	Intro	HEP-II	HEP-III	HEP-III	HEP-IV
10:00	HEP-I	ANN-II	ANN-III	ANN-III	NP of 2024
11:00	ANN-I	CNN	Statistics	Statistics-II	NP of 2024
12:00-13:30	Lunch break	Lunch break	Lunch break	Lunch break	Lunch break
13:30	Python Intro	ANN Tutorial	ANN Tutorial	Fat Thursday	ANN tutorial
14:00	ANN Tutorial			(Carnival)	
17:00					
Evening		Group Dinner			

	Lectures in HISKP
	Tutorials
	Group activities

Mensa Poppelsdorf

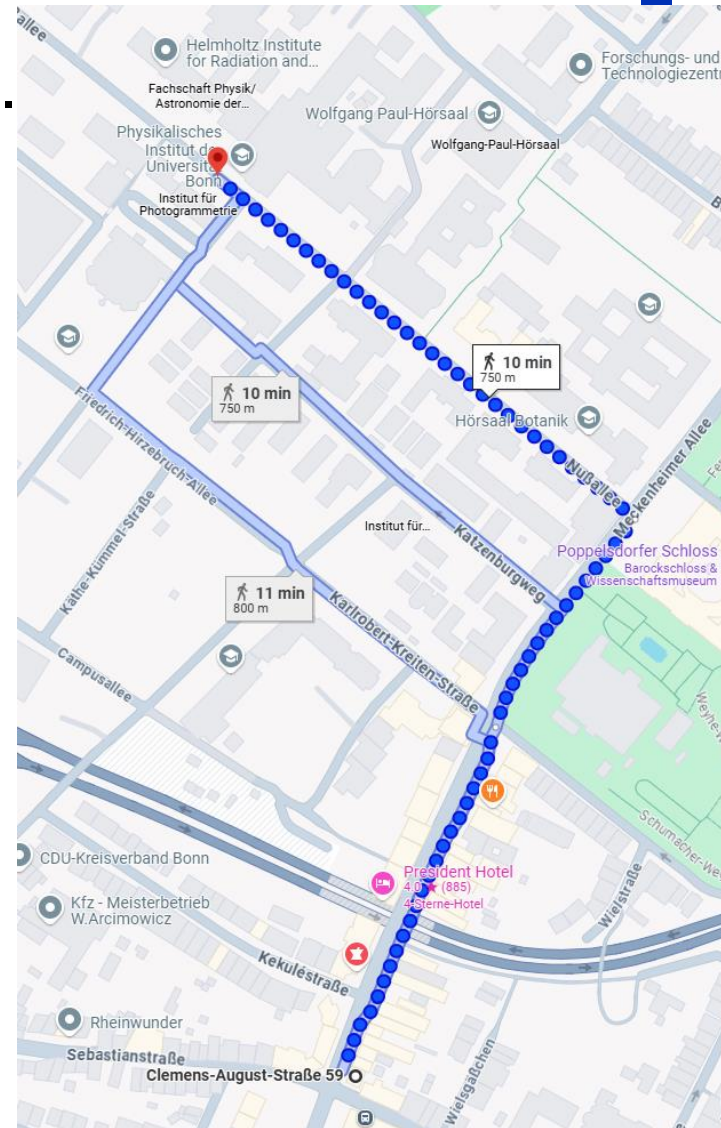
We will cover the costs of meals in Mensa



Non-physics activities

Group dinner on Tuesday, Feb 25th, 6pm.

- “Gesindehaus, Near bus stop “Am Botanischen Garten”, 10 min walk from lecture hall.
- Dinner but not drinks are covered by the University.
- Exkursion on Thursday, Feb 27th afternoon
 - This is Fat Thursday “Carnival”
 - We will join the institutes Carnival party in Wolfgang-Paul-Hörsaal
 - Costumes possible but not required



Laptops Reqs

you need to bring your laptop with the following programs installed

- **python3** with the following modules added
numpy, pandas, tensorflow (version 2.0 or higher), ipython,
matplotlib, scikit-learn, scipy
This should be easily installable under any operating system out of
Linux, MacOS, Windows 10 or 11. Often an environment manager
like Anaconda is used. We encourage that.
- **Visual Studio Code** (VScode from microsoft), available for free for
any OS. If you have an editor that you deem even better than
VScode feel free to use it, provided it supports:
 - * syntax highlighting for python code
 - * internal shell for python commands,
 - * running jupyter scripts within editor window.
- **EduRoam** Your university probably uses EduRoam to provide you with access to
their wireless internet. You might need to install additional software from your
university if you have not used eduroam on your laptop so far. Do that before you
come here.
With Eduroam in place you should be able to access the internet in Bonn using **your
home-University credentials**.

Level of Python Knowledge

- Basic python knowledge would be good but is not a requirement
- Please read up a bit on python if you have not used it so far.
- We will use the following packages:
 - pandas
 - numpy
 - matplotlib
 - tensorflow

- If you are looking for a Master's program in Physics or Astronomy
- BCGS offers a two-year course
- Prestigious stipend program
- Further info:



<https://www.gradschool.physics.uni-bonn.de/>

Pack a coat, a hat and good shoes. It will get warmer soon but the mornings are still chilly.

See you all in Bonn