

Machine-Learning-Based Sampling in Lattice Field Theory and Quantum Chemistry

October 21-25, 2024 (Bethe Forum)



The Organizing Team



Dr. Kim A. Nicoli
University of Bonn



Jun. Prof. Dr. Lena Funcke
University of Bonn



Dr. Shinichi Nakajima
TU Berlin



Tom Froembgen
University of Bonn

About the City of Bonn

- Bonn is the former capital of Germany and the current German UN headquarters.
- Capital of Candys (Birthplace of Haribo).
- Fun fact: Haribo is an acronym for **H**ans **R**iegel **B**onn.
- Birthplace of Beethoven.
- Bonn had two Nobel laureates and Fields Medal winners
 - Prof. Dr. Wolfgang Paul (1989, Physics)
 - Prof. Dr. Reinhard Selten (1994, Economics)
 - Prof. Dr. Gerd Faltings (1986)
 - Prof. Dr. Peter Scholze (2018)



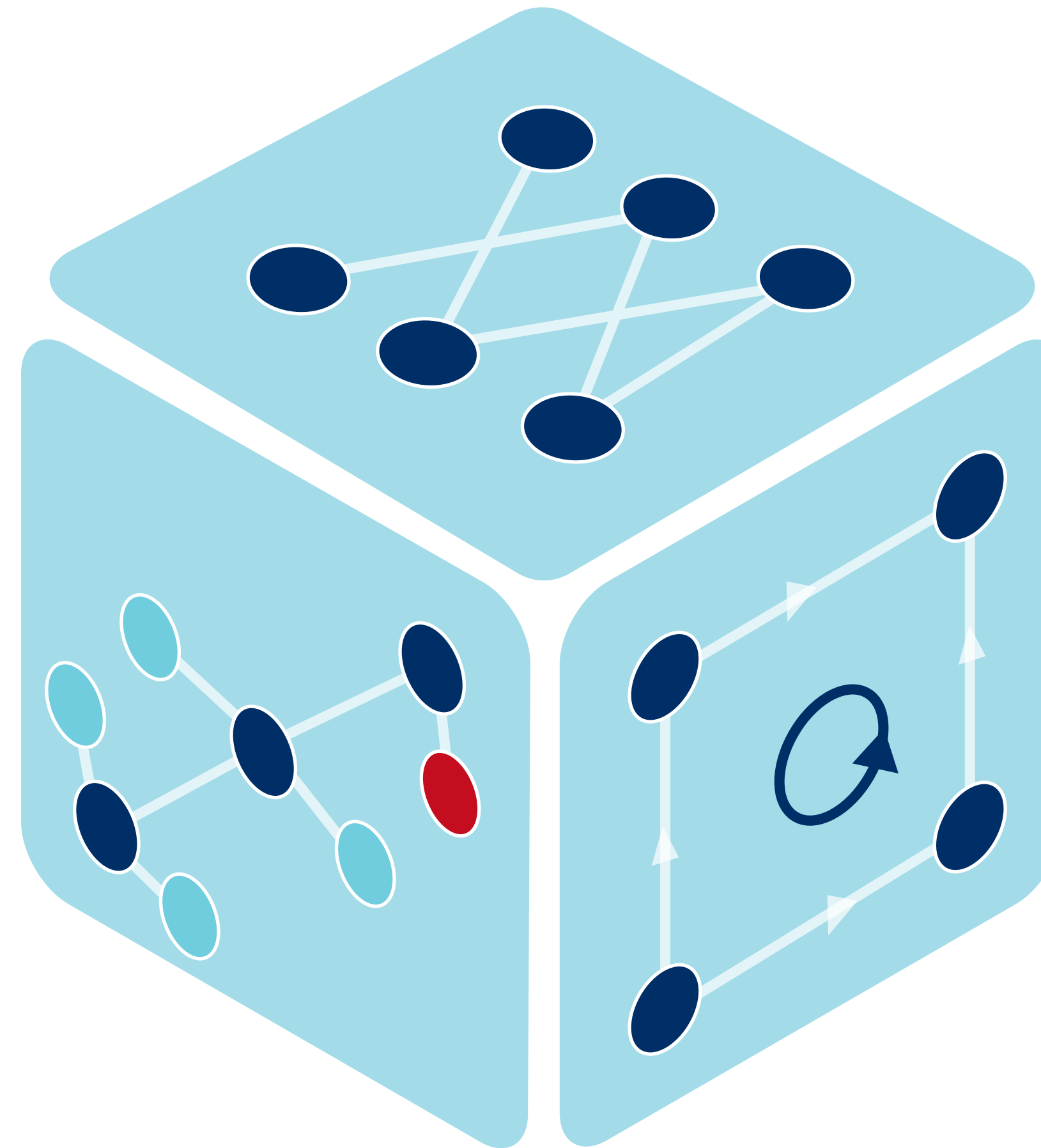
Our Sponsors

- Transdisciplinary Research Area (TRA)
- Collaborative Research Center: Numeriqs
- Bethe Institute for Theoretical Physics



Our Program 1/2

- 13 Technical Talks
- 3 Keynotes
- 3 Panel Discussions
- 2 Colloquia
- 1 Poster Session



All talks will be live-streamed at the following link:

<https://uni-bonn.zoom-x.de/j/61315364227?pwd=JrbK5W2FqjaV45WxoUIEyYJOztaMRV.1>

Our Program 2/2

	Day	Monday 21.10	Tuesday 22.10	Wednesday 23.10	Thursday 24.10	Friday 25.10
Time						
8:45 - 9:20		Registration (Coffee)	Registration (Coffee)	Registration (Coffee)	Registration (Coffee)	Registration (Coffee)
9:20 - 10:00		Welcome Remarks (9:40 - 10:00)	Keynote: P. Kessel (ML Physics)	T. Bereau	Keynote: M. Albergo (Generative Models)	Keynote: J. Kohler (ML and Chemistry)
10:00 - 10:40		G. Kanwar		B. Mate		
10:40 - 11:10		Break (Coffee)	Break (Coffee)	Break (Coffee)	Break (Coffee)	Break (Coffee)
11:10 - 11:50		D. Hackett	L. Richter	P. Bialas	P. de Haan	L. Klein
11:50 - 12:30		A. Nada	M. Albergo	S. Bacchio	C.J. Anders	G. Corso
12:30 - 14:30		Lunch	Lunch	Lunch	Lunch	Lunch
		Break (Coffee) from 14:00	Break (Coffee) from 14:00	Break (Coffee) from 14:00	Break (Coffee) from 14:00	Break (Coffee) from 14:00
14:30 - 15:45		Poster Flashtalks (1 min pp)	Panel 1: Research in Industry and Academia (Richter, Kessel, Gerken) - Moderator: K. Nicoli	Social Activity (TBD)	Panel 2: ML in Physics (Nada, Bialas, Kanwar) - Moderator: L. Funcke	Panel 3: ML in Chemistry (Kohler, Wang, Corso) - Moderator: T. Froemberg_
15:45 - 16:15		Break (Coffee)	Break (Coffee)		Break (Coffee)	Break (Coffee)
16:15 - 17:00		Poster Session + Reception	TRA Colloquium: J. E. Gerken (FTD room)		Bethe Colloquium: G. Kanwar	Closing Remarks (10 min.)
17:00 - 19:30			-		-	
19:30 - open			Dinner - 60 seconds to Napoli			

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Get your best outfit ready!

Group picture during the first coffee break on Wednesday

Poster Session

- The poster session is articulated into two steps
 1. **Flash Talks** (Monday 21st October, ~ 14:30)
 2. **Poster Session** (Monday 21st October, from 16:30 until 19:30)
- The poster session will be held in the BCTP (same room as the talks + corridor)
- Finger Food and Drinks will be provided, thanks to our sponsors!

N.B. That is supposed to be a light snack, not a full dinner. 🍔

IMPORTANT: If you have not sent your 1-slide presentation for the flash talks please do so by the first coffee break and let me know.

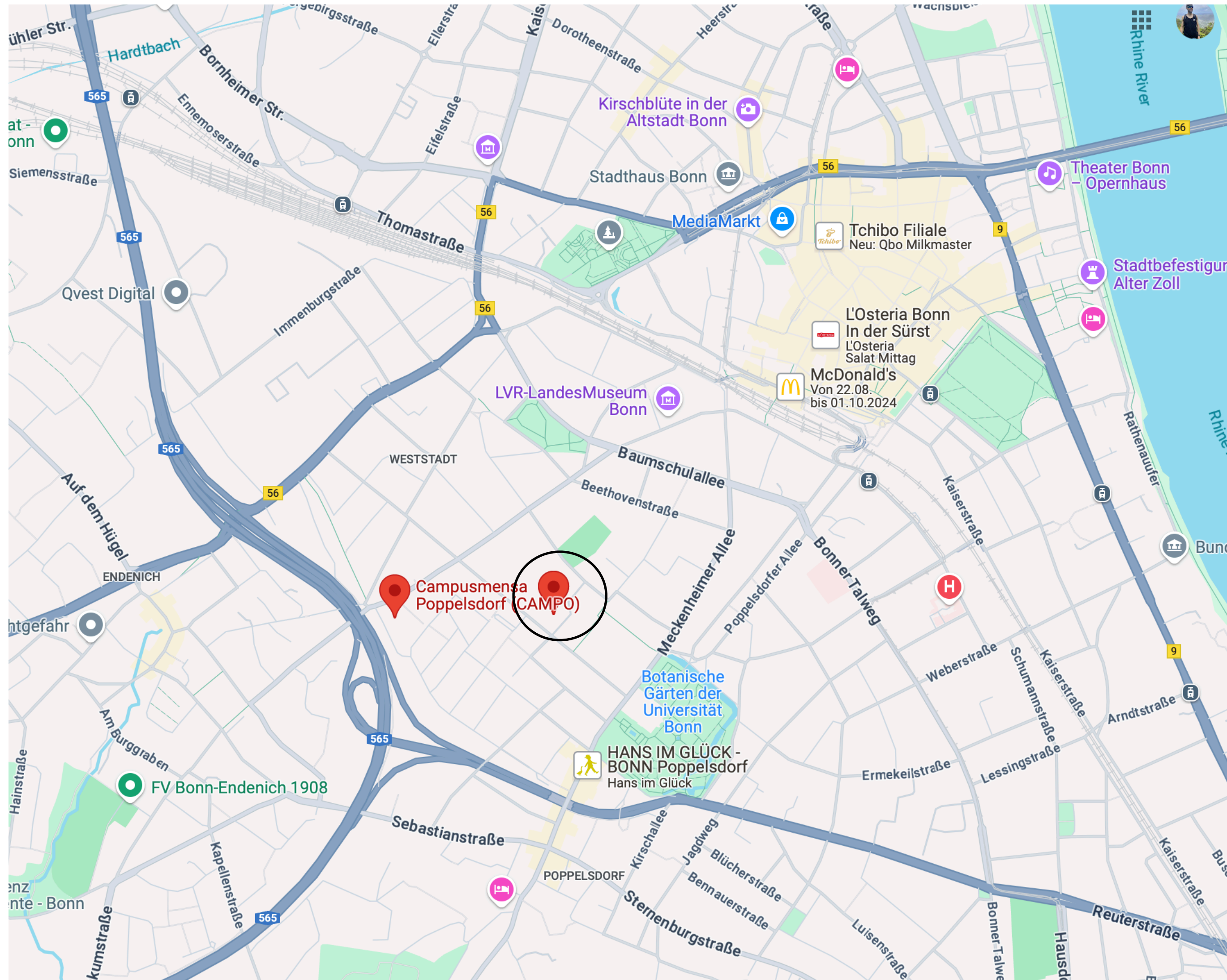
Panel Discussions

- We are planning **three panels** on the following topics:
 - I) **Research in Industry and Academia** (J. [Gerken](#), P. [Kessel](#) and L. [Richter](#)) - Tuesday 14:30-15:45
 - II) **Machine Learning in Physics** (P. [Bialas](#), G. [Kanwar](#) and A. [Nada](#)) - Thursday 14:30-15:45
 - III) **Machine Learning in Chemistry** (G. [Corso](#), J. [Köhler](#) and L. [Wang](#)) - Friday 14:30-15:45
- If you have questions you would like answered, add them to the list via these links
 - I) [Research in Industry and Academia](#)
 - II) [Machine Learning in Physics](#)
 - III) [Machine Learning in Chemistry](#)

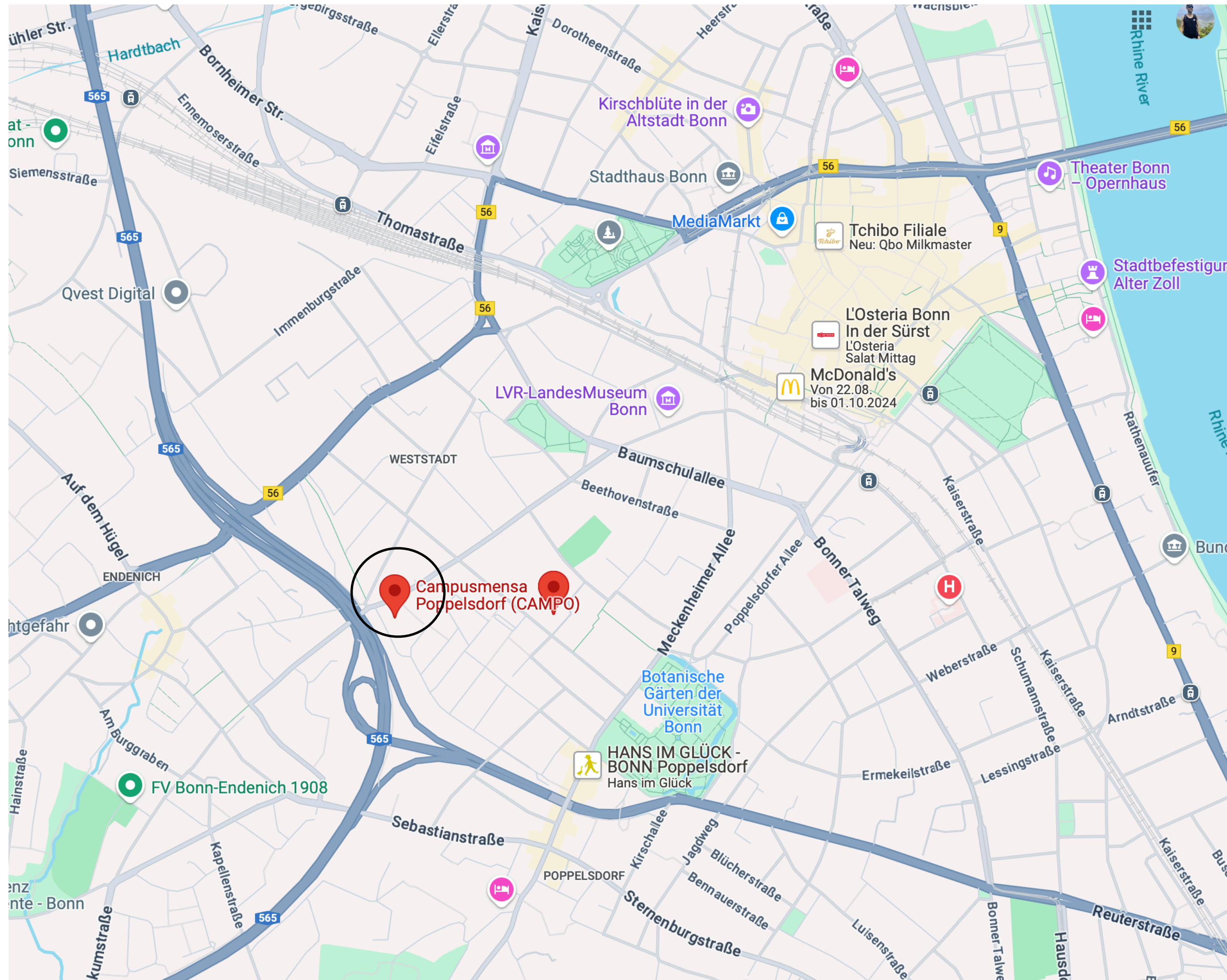
Keynotes & Colloquia

- We have the pleasure to host **three keynote talks**:
 - I) **ML-based sampling in Physics** | Dr. M. Albergo | Tuesday 9:20
 - II) **Generative Models** | Dr. P. Kessel | Thursday 9:20
 - III) **Machine Learning in Chemistry** | J. Köhler | Friday 9:20
- Two special **colloquia** will also take place:
 - I) **TRA Colloquium** - "*Symmetries in AI4Science*" | Dr. J. Gerken | Tuesday 16:15
(The talk will take place in the FTD building, Kreuzbergweg 24, 53115 Bonn)
 - II) **Bethe Colloquium** - "*Generative flow models for lattice field theory*" | Dr. G. Kanwar | Thursday 16:15

How to Get Around: Bethe Center

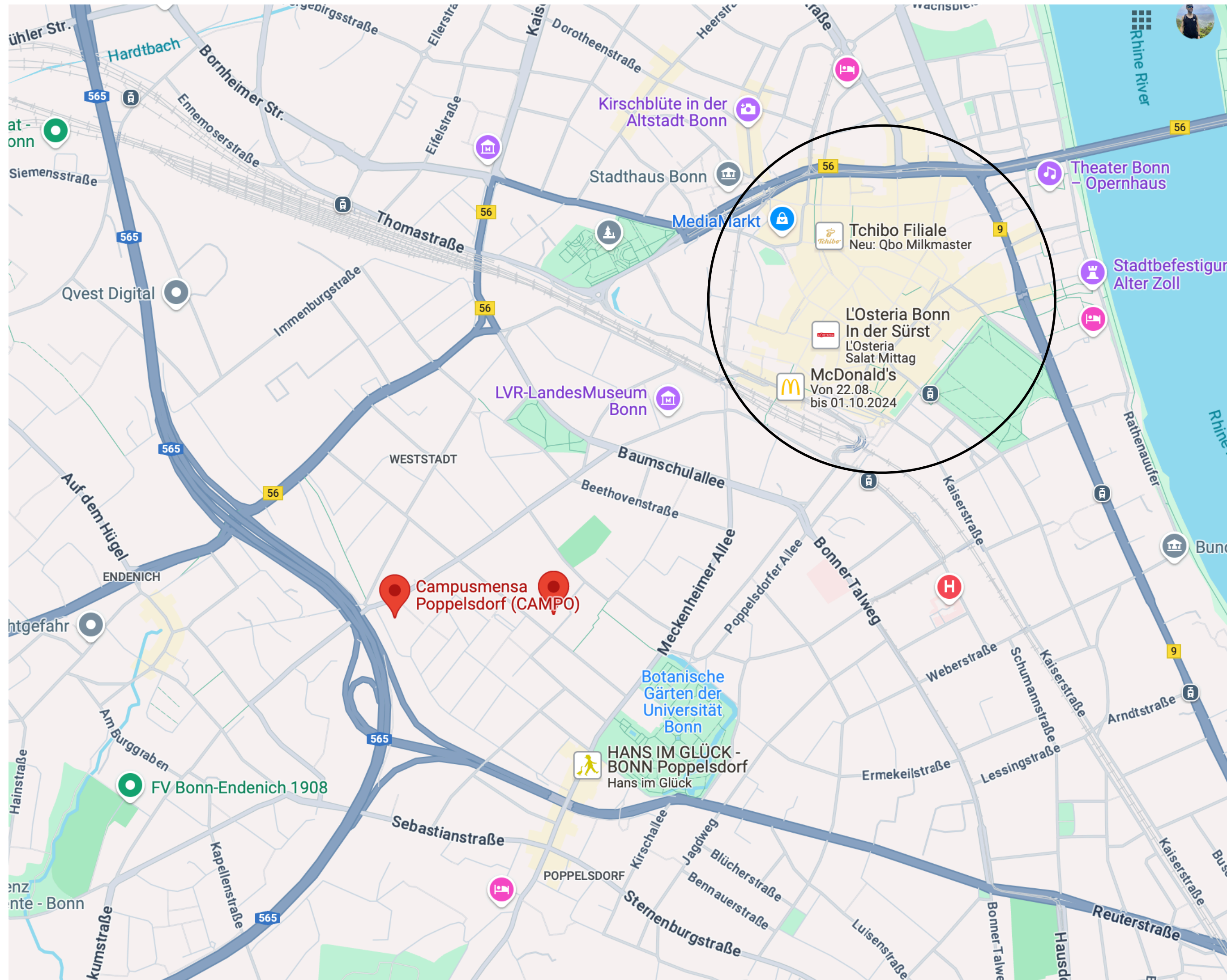


How to Get Around: Mensa



~5 min walk

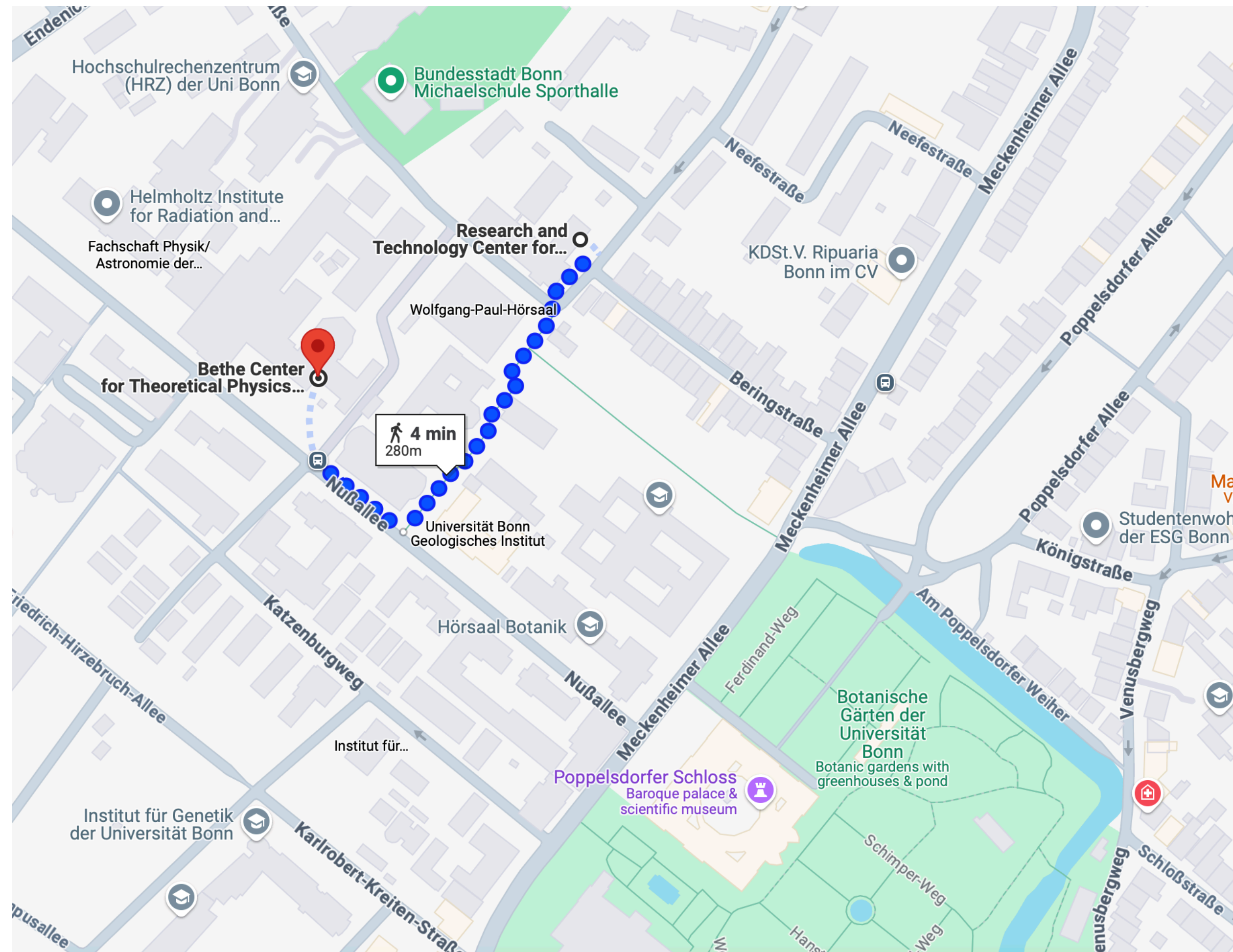
How to Get Around: City Center



~10 min walk

How to Get Around: FTD Building

TRA Colloquium Tuesday Evening



Social Dinner (Tuesday 22nd Oct.)

Pizza Dinner (Approved by Italians)

When: Tuesday October 22nd 19:00



Where: 60 Seconds to Napoli ([Kaiserplatz 11, 53113, Bonn](#))

IMPORTANT: If you have not registered via the form sent via email last week (but you wish to come), please contact one of the organizers.

Social Activity (Wednesday 23rd Oct.)

During the afternoon of **Wednesday**, we plan a free afternoon for you to enjoy the city and engage in further scientific discussions cruising on the Rhine. We propose different excursions:

- Guided City Tour (with [Tom Froembgen](#)) - Free
- Visit to the [Beethoven Museum](#) - 8 eur
- Visit to the [Museum of German History](#) - Free

Every excursion will start at **14:30 in front of the Bethe Center**.

Please choose which group (end excursion) to attend until this evening so the group can be properly organized ([link here](#)).



Travel Forms

- Speakers who have not done so yet, can send their travel receipts for reimbursement at ml4physchem.workshop@gmail.com
- Please include:
 - ✓ Receipts showing your travel costs.
 - ✓ Reimbursement form ([available here](#)) filled with your details and signed.

Enjoy the Workshop, and
Welcome to Bonn!!

