

## WPI & MMM workshop on “Inverse-design magnonics”

18-20 February, 2024

Wolfgang Pauli Institute and Research Platform MMM @ Univ. Vienna

Oskar-Morgenstern-Platz 1, 1090 Wien



**W**ith the rapid development of artificial intelligence in recent years, mankind is facing an unprecedented demand for data processing. Over the past few decades, scientists have been searching for faster and more efficient ways to process data. Now, magnons, the quanta of spin waves, are showing the potential for higher efficiency and lower energy consumption in solving some specific problems. Many magnonic computing units have been realized recently, each typically suitable for a single function.

In this workshop, we will focus on the much more powerful and promising approach of inverse design magnonics, where functionalities are first specified and a feedback-based (e.g., machine learning) computational algorithm is used to design a device with the desired functionalities.

### Organisers:

- Andrii Chumak (Fak. Physik and MMM, U. Vienna)
- Dieter Suess (Fak. Physik and MMM, U. Vienna)
- Norbert J. Mauser (WPI & MMM c/o Fak. Math, U. Vienna)

### Participants:

Claas Abert (U Vienna), Markus Becherer (TUM), David Breitbach (RPTU Kaiserslautern-Landau), Florian Bruckner (U Vienna), Gyorgy Csaba (PPCU), Kristýna Davidková (U Vienna), Milan Ender (RPTU Kaiserslautern-Landau), Carlos Gonzalez Ballesteros (TU Wien), Johannes Greil (TUM), Fabian Majcen (U Vienna), Felix Naunheimer (TUM), Ádám Papp (PPCU), Philipp Pirro (RPTU Kaiserslautern-Landau), Harald Özelt (UWK KREMS), Thomas Schrefl (UWK KREMS), Noura Zenbaa (U Vienna)

## Program

### Sunday 18<sup>th</sup> of February Group Dinner at 18:00 @TBA

	Monday 19 <sup>th</sup> of February	Tuesday 20 <sup>th</sup> of February
09:00-09:30	A. Chumak + D. Suess + N. Mauser: Workshop Opening	Thomas Schrefl (UWK Krems)
9:30 – 10:00	Markus Becherer (TU Munich)	Harald Özelt (UWK Krems)
10:00-10:30	Johannes Greil and Felix Naunheimer (TU Munich)	Philipp Pirro (RPTU Kaiserslautern)
10:30-11:00	Carlos Gonzalez Ballester (TU Wien)	David Breitbach (RPTU Kaiserslautern)
11:00 – 11:30	Coffee Break	Coffee Break
11:30 – 12:00	Dieter Suess (U Vienna)	Andrii Chumak (U Vienna)/ Kristýna Davidková (U Vienna)
12:00 – 12:30	Claas Abert (U Vienna)	Noura Zenbaa (U Vienna)
12:30 – 13:00	Florian Bruckner (U Vienna)	Fabian Majcen (U Vienna)
13:00 – 15:00	Lunch	Lunch and free discussions
15:00 – 15:30	Gyorgy Csaba (PPCU Budapest)	
15:30 – 16:00	Ádám Papp (PPCU Budapest)	
16:00 – 16:20	Milan Ender (RPTU Kaiserslautern)	
16:20 – 18:00	Lab Tour <i>NanoMag</i> and <i>FuncMat</i> (Boltzmannngasse 5, 1090 Vienna)	
18:30	Dinner	