How to Research Visit

(And How Not To)

February 26, 2025 | **Johannes Wasmer**[1] | [1]PGI-1 Quantum Theory of Materials, Forschungszentrum Jülich

HDSLEE HELMHOLTZ School for Data Science in Life · Earth · Energy

JÜLICH Forschungszentrum

Talk held in HDS-LEE coffee break HDSLEE coffee break.

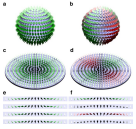
Latest version of slides are here.

My research group

Division “Quantum Theory of Materials”

Stefan Blügel

PhD advisor

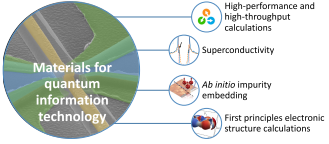


Expertise DFT, Quantum magnetism, Spintronics

▶ Group “Materials for Quantum Information Technology”

Philipp Rüßmann

Co-advisor



Expertise DFT, Superconductivity, Topological materials

Code development

fleur

spirit

JuKKR

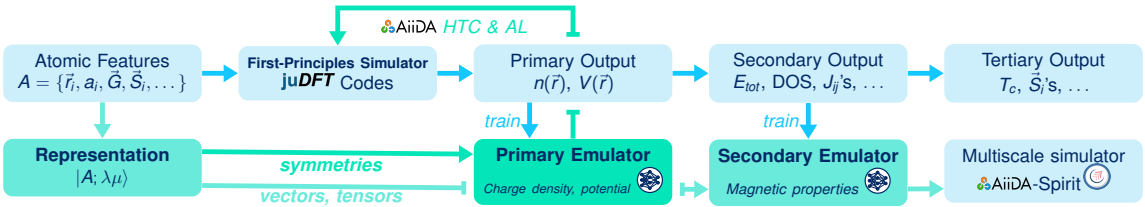
AiiDA

judft.de // JuDFTteam

My PhD project

ML surrogates for all-electron electronic structure methods

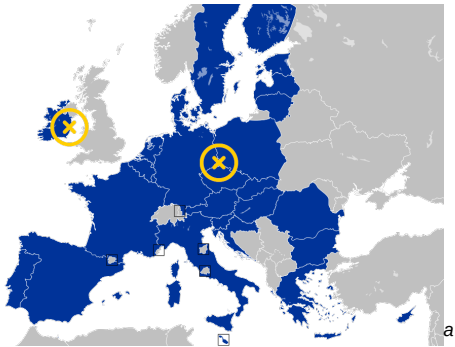
go.fzj.de/wasmer



Smart "initial guess"
for fast SCF convergence

Magnetic property prediction
for spin dynamics simulation

My research visits



[a] Kolja21 2020.

Funding

HDSLEE
Internal (50/50)
3 months

cost
EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
cost.eu STSM
1 month

HiDA
Trainee Network
3 months

Host Jul-Oct 2024

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Prof. Dr. Stefano Sanvito
Computational Spintronics Group

Host Feb-May 2025

CASUS
CENTER FOR ADVANCED SYSTEMS UNDERSTANDING

Dr. Attila Cangi
Machine Learning for Materials Design Group

My research visits notes

Research visits notes

- I documented the whole process here
- List of over a dozen of funding programs
- My complete journal
- My applications
- Administration, organization

My process & recommendations

- Started PhD in April 2022
- By end of 2022, realized that my group lacks ML expertise, need to gain experience outside
  - → **If you want to do a research visit, start earlier! Finding a host is easy, getting funding is hard.**
- Start of 2023, selected 5 possible host groups, prepared research visit pitches
- Dublin, established contact with Dublin with help of my PI
- Görlitz, established contact independently at a conference
- March 2023, submitted my DAAD application for 8-months visit to Dublin
  - → **From application to confirmation can take 1-5 months!**
  - → **Ask other HDS-LEE colleagues for advice (Slack)**

My process & recommendations

- March 2023, started online collaboration with Dublin
- July 2023, the DAAD application was rejected (2/3 get rejected)
- Summer 2023, looked for other funding sources
- October 2023, submitted my HIDA Trainee Network application for 3-months visit to Görlitz
- December 2023, invited to become member in European Daemon-COST Action network through my social media activity (post)
- February 2024
  - **HIDA Trainee Network application was accepted, open for one year**
  - Daemon call for short-term scientific mission (STSM) funding opens, applied
  - **PI informs me that HDS-LEE has additional funding for research visits (50/50)**

My process & recommendations

- **My STSM application is accepted**
- Reorganize resarch visit schedule, organize visits (housing, etc.)
- July-October 2024, research visit to Dublin
- Feb-May 2025, research visit to Görlitz

Some impressions

Dublin, Trinity College 🏛

Dublin, new research colleagues 🔬

Dublin, found my partner ❤️

Dublin, new friends ✌️

Dublin, Cliffs of Moher 🌊

Görlitz, Old Town 🏰

Görlitz, new colleagues 🔬

References I

Kolja21 (Feb. 1, 2020). File:European Union Main Map.Svg. URL: https://commons.wikimedia.org/wiki/File:European_Union_main_map.svg.