

# Sophie Dinah Beck

## Curriculum Vitae

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phibeck

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## Experience

### Research

- 2020 - present **Research Fellow**, *Center for Computational Quantum Physics, Flatiron Institute*, New York.  
interests: *ab-initio* description of strongly correlated electron systems
- 2014 - 2015 **Research assistant**, *Albert Ludwig University of Freiburg*, Freiburg.  
Investigation of protein aggregation at lipid membrane surfaces using MD simulations

### Organization

- 2019 **Co-organizer of summer school**, *Advanced Electronic Structure Methods in Condensed Matter Physics*, EPFL, Lausanne, Switzerland.

### Teaching

- 2016 - 2020 **Teaching assistant, supervision of bachelor/master theses**, *ETH Zürich*, Zürich.  
Programming techniques in materials science
- 2014 - 2016 **Teaching assistant**, *Albert Ludwig University of Freiburg*, Freiburg.  
Classical mechanics and special relativity, physics practicum for medical students

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## Education

- 2016 - 2020 **PhD, Materials Science**, *Materials Theory, ETH Zürich*, Zürich.  
*Metal-insulator transitions in complex oxide heterostructures*  
Supervisor: Prof. Dr. Claude Ederer
- 2013 - 2015 **M.Sc. Physics**, *Albert Ludwig University of Freiburg*, Freiburg.  
*Projection operator techniques in the quantum theory of electronic energy transfer*  
Supervisor: Apl. Prof. Dr. Heinz-Peter Breuer
- 2013 - 2014 **Semester abroad**, *National University of Singapore*, Singapore.
- 2010 - 2013 **B.Sc. Physics**, *Albert Ludwig University of Freiburg*, Freiburg.  
*Master equation approach to the strong-coupling limit of the spin-boson model*

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## Technical Skills

Proficient with electronic structure codes and HPC usage  
Knowledge in data analysis and data visualization using the scientific Python stack  
Programming languages: Python, Fortran, bash, MPI, C++  
Experienced in analytical derivations and calculations

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## Conferences

### Invited talks

- 2022 **tbd**, *ETSF Young Researchers' Meeting*, Marseille, France.
- 2022 **Correlation effects and realistic materials modeling with DFT+DMFT**, *Wannier 2022 Summer School*, Trieste, Italy.
- 2022 **DFT+DMFT perspective on correlated oxide interfaces**, *APS March Meeting*, Chicago, USA.
- 2017 **Metal-insulator transition in  $\text{CaVO}_3$  thin films from DFT+DMFT**, *NCCR MARVEL Review and Retreat*, Lausanne, Switzerland.

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## Fellowships & Prizes

- 2016 **Gustav-Mie-Preis**.
- 2013 **Scholarship Baden-Württemberg-STIPENDIUM of the Baden-Württemberg Foundation**.

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## Languages

German	native language
English	full professional proficiency
French	intermediate
Spanish	basic

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## References

**Prof. Dr. Andrew J. Millis**  
Dept. of Physics, Columbia University  
Flatiron Institute, Simons Foundation  
USA  
✉ [ajm2010@columbia.edu](mailto:ajm2010@columbia.edu)

**Prof. Dr. Antoine Georges**  
Collège de France, France  
Flatiron Institute, Simons Foundation  
USA  
✉ [ageorges@flatironinstitute.org](mailto:ageorges@flatironinstitute.org)

**Prof. Dr. Claude Ederer**  
Materials Theory, ETH Zürich  
Switzerland  
✉ [claudio.ederer@mat.ethz.ch](mailto:claudio.ederer@mat.ethz.ch)

**Prof. Dr. Nicola Spaldin**  
Materials Theory, ETH Zürich  
Switzerland  
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New York, April 23, 2022,

*Sophie Beck*