

## Contact

👤 [gaucher.io](http://gaucher.io)  
🌐 [LinkedIn](#)  
✉ [gaucher@pdi-berlin.de](mailto:gaucher@pdi-berlin.de)  
☎ +49 174 3857521  
📍 Berlin, Germany  
🗣 French (C2), English (C2), German (B2)



## 🎓 Education

2016-2020 **Dr. rer. nat., Physics, Supervisor: Prof. Dr. Henning Riechert**  
*Humboldt Universität, Berlin, Germany*  
2014-2015 **M. Sc., Physics, Supervisor: Prof. Guillaume Gervais**  
*McGill University, Montreal, Canada*  
2010-2013 **B. Sc., major Physics & minor Philosophy**  
*McGill University, Montreal, Canada*

## 🏛 Work experience

2016-2019 **Paul-Drude-Institut**, Doctoral Researcher (experimental solid-state physics)  
2014-2015 **McGill University**, Graduate Researcher (experimental condensed-matter physics)  
**McGill University**, Teaching Assistant (physics)  
**Self-employed**, Scientific Illustrator (contractual)  
2013 **McGill University**, Undergraduate Researcher (nanofabrication)  
2010-2012 **American Biltrite**, Chemistry Technician (PVC-free flooring, summers)  
2006-2020 **Self-employed**, Violin Professor, Jazz/Classical Musician

## 🏆 Professional highlights

2020 **PhD thesis** submitted.  
2019 **Negotiated** a 10% salary increase for all graduate students at the Paul-Drude-Institut.  
2018 **Implemented** a Python interface for experimental control, now used in two labs.  
2017 **Invented** a *patent pending* device to tune the spin polarization of electrical currents.

## Aptitudes

### *Hard skills*

**Data analysis:** 5+ years of experience visualizing and understanding data trends for scientific purposes, statistical treatment of experimental data using self-made code.

**Research & Development:** Played a central role in multiple research projects with focus on industry applications, leading collaborations and guiding undergraduate students.

**Programming:** Frequent use of various programming languages for data processing, instrument control, and personal projects (Python, Git, Mathematica, Matlab, HTML, CSS).

**Written/oral/visual communication:** Co-authored 6+ scientific publications, personal website. Took part in 15+ scientific conferences and general public events.

**Teaching:** Violin professor for 4+ years (2006-2010, then occasionally), experimental physics teaching assistant, counseling and grading, private tutor of mathematics (2010).

### *Soft skills*

**Leadership:** Involved since high-school in student committees, occupying elected leading positions (student body president/delegate), PhD student speaker (2017-2019).

**Problem-solving:** Result-driven mentality perfected through 6+ years of research at the forefront of nanoelectronics.

**Inventiveness:** Proposed a patent pending (Germany, 2017) device meant to tune the spin polarization of electronic charge currents, found ways to fabricate new nanostructures, synthesized a novel material ( $\alpha$ -FeGe<sub>2</sub>).

## Workshops, Outreach & Activities

- 11/2019 Volunteer for the *Berlin Science Week* via the Falling Walls Foundation.
- 06-07/2019 *Young Entrepreneurs in Science Workshop* offered by the Falling Walls Foundation, a 4-day training aimed at developing entrepreneurial potential (Leipzig).
- 11/2018 Speaker at the Mind the Lab event during the *Berlin Science Week*.
- 05/2017 25<sup>th</sup> Anniversary of the Forschungsverbund Berlin, **slam:** *Have you seen my crystals?*
- 01/2017 Kerschensteiner Kolleg Workshop on the Dissemination of Science (Munich).
- 2015 NSERC-CREATE Integrated Sensor Systems Graduate Training Program (McGill University, Montreal, Canada).

## Personal

**Citizenship:** Canadian, German residence/work permit.

**Location:** Based in Berlin, willing to travel.

## Publications

- 2018 Ordered structure of FeGe<sub>2</sub> formed during solid-phase epitaxy. B. Jenichen, M. Hanke, **S. Gaucher**, et al. *Phys. Rev. Mater.* **2** 051402
- 2018 Ferromagnet/semiconductor/ferromagnet hybrid trilayers grown using solid-phase epitaxy. **S. Gaucher** et al., *Semicond. Sci. Technol.* **33** 104005
- 2017 Specific heat and entropy of fractional quantum Hall states in the second Landau level. B. A. Schmidt, K. Bennaceur, **S. Gaucher**, et al., *Phys. Rev. B* **95** 201306
- 2017 Growth of Fe<sub>3</sub>Si/Ge/Fe<sub>3</sub>Si trilayers on GaAs(001) using solid-phase epitaxy. **S. Gaucher** et al., *Appl. Phys. Lett.* **110** 102103
- 2017 Fe<sub>3</sub>Si/Ge/Fe<sub>3</sub>Si thin film stacks on GaAs(001): a solid-phase epitaxy approach. **S. Gaucher** et al., *PDI Annual Report 2016*, 91
- 2015 Flip-Chip Fabry-Perot Electron Interferometer, **S. Gaucher**, *Master's thesis*.
- 2015 Mechanical Flip-Chip for Ultra-High Electron Mobility Devices. K. Bennaceur, B. A. Schmidt, **S. Gaucher**, et al., *Sci. Rep.* **5** 13494

## Conferences

- 03/2019 Regensburg (Germany), Annual meeting of the German Physical Society, **poster**: *Structural and electrical properties of layered FeGe<sub>2</sub> thin films*.
- 08/2018 Linz (Austria), 10<sup>th</sup> international School and Conference on Physics and Applications of Spin Phenomena in Solids, **poster**: *Magnetotransport in FeGe<sub>2</sub> thin films*.
- 01/2018 Berlin (Germany), Institute Seminar at the Paul-Drude-Institut für Festkörperelektronik, **talk**: *Ferromagnetic thin film heterostructures grown by solid-phase epitaxy*.
- 11/2017 Berlin (Germany), Annual meeting of the German Physical Society, **poster**: *FeGe<sub>2</sub> thin films grown by solid-phase epitaxy*.
- 09/2017 Vienna (Austria), Austrian MBE Workshop 2017, **talk**: *Magnetic properties of ferromagnet/semiconductor/ferromagnet hybrid trilayers grown by solid-phase epitaxy*.
- 09/2017 Bad Honnef (Germany), German Physical Society Summer School on Magnetism, **poster**: *Fe<sub>3</sub>Si/Ge/Fe<sub>3</sub>Si trilayers on GaAs(001)*.
- 01/2017 Munich (Germany), Kerschensteiner Kolleg *Workshop on the Dissemination of Science*.
- 05/2014 Montreal (Canada), Canadian Institute for Advanced Research: *Quantum Materials Summer School*.

## Teaching

- Fall 2015 PHYS-101: Introductory Physics - Mechanics (Lab TA)
- Winter 2015 PHYS-258: Experimental Methods II (Lab TA)
- Fall 2014 PHYS-257: Experimental Methods I (Lab TA)
- Winter 2014 PHYS-102: Introductory Physics - Electromagnetism (Lab TA)