




Samuel Gaucher - Curriculum Vitæ

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Education

- 2016- **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

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 analytics tools.

Project management: Central role in own research projects, leading real-life and virtual collaborations, organizing meetings.

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

Writing: Co-authored 6+ scientific publications, personal website.

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 multiple student committees, often occupying elected leading positions (student body president/delegate), PhD student speaker since 2017 (Paul-Drude-Institut für Festkörperelektronik).

Problem-solving: Result-driven mentality perfected through 5+ years of research at the forefront of nanoelectronics, solving many technical, scientific, and quantitative problems.

Inventiveness: Proposed a patent pending (Germany, 2017) device meant to tune the spin polarization of electronic charge currents, competence in designing experiments and providing solutions reaching beyond my own projects.

Professional experience

- 2016-2019 **Paul-Drude-Institut für Festkörperelektronik**, doctoral researcher
project: Spin-selective transistor.
- 2014-2015 **McGill University**, graduate researcher
project: Electron interferometer.
- 2013 **McGill University**, undergraduate researcher
project: E-beam lithography.
- 2012 **American Biltrite**, technician in chemistry
project: PVC-free flooring materials.

Personal

Citizenship: Canadian

Birthdate: October 8, 1989

Languages: French (native), fluent English, advanced German, basic Italian.

Interests: sports (indoor/outdoor climbing, martial arts, cycling), music performance (violin, piano).

Publications

- 2018 Ordered structure of FeGe₂ 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 Fe₃Si/Ge/Fe₃Si trilayers on GaAs(001) using solid-phase epitaxy. **S. Gaucher** et al., *Appl. Phys. Lett.* **110** 102103
- 2017 Fe₃Si/Ge/Fe₃Si 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

Talks, Workshops & Outreach

- 03/2019 Regensburg (Germany), Annual meeting of the German Physical Society, **poster**: *Structural and electrical properties of layered FeGe₂ thin films*.
- 11/2018 Berlin (Germany), speaker at the *Mind the Lab* event during the Berlin Science Week.
- 08/2018 Linz (Austria), 10th international School and Conference on Physics and Applications of Spin Phenomena in Solids, **poster**: *Magnetotransport in FeGe₂ 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**: *FeGe₂ 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**: *Fe₃Si/Ge/Fe₃Si trilayers on GaAs(001)*.
- 05/2017 Berlin (Germany), 25th Anniversary of the Forschungsverbund Berlin, **slam**: *Have you seen my crystals?*
- 01/2017 Munich (Germany), Kerschensteiner Kolleg Workshop on the Dissemination of Science.
- 2015 NSERC-CREATE Integrated Sensor Systems Graduate Training Program (McGill University).
- 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)
- 02/2015 Introductory lecture on Python tailored for the PHYS-258 class
- Fall 2014 PHYS-257: Experimental Methods I (Lab TA)
- Winter 2014 PHYS-102: Introductory Physics - Electromagnetism (Lab TA)