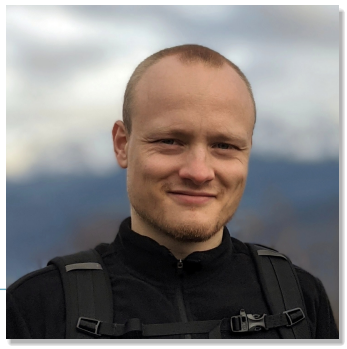
Curriculum Vitae



Personal details

Surname	Vethaak
Given names	Tom Doekle
Address	31 Cours Berriat, 38000 Grenoble, France
Date and place of birth	25th of March 1993, Purmerend, the Netherlands
Nationality	Dutch
Languages	Dutch (C2), English (C2), Norwegian (C1), French (B2/C1)
Phone number	+33 6 20 23 87 55
E-mail address	`Tom.Vethaak@gmail.com`

Executive summary

I'm a **junior physicist** with a background in theoretical and numerical modeling of ferromagnetic and superconducting systems, as well as fabrication and low-temperature characterization of nano-electronic devices. An international student who enjoys collaborative projects, with broad interests from theory to experiment, from physics to languages, literature and computer science. An experienced programmer and a teacher with good control of the classroom. A fan of the outdoors with a passion for food and cooking.

Education and work experience

2018 – today

PhD in Quantum Engineering
Marie Skłodowska-Curie scholarship No 754303
Université Grenoble-Alpes/CEA Grenoble

Thesis: *Superconducting circuits in silicon technology*

Supervisors: François Lefloch, Fabrice Nemouchi

Experimental work studying the Josephson effect in modified CMOS transistors for applications in superconducting qubits. A multidisciplinary effort focused on material science, nanoelectronics and low-temperature physics.

2016 – 2017

Research project: *Non-equilibrium quantum transport and analytical conductance formula in spin-textured diffusive superconducting heterostructures*
Norwegian University of Science and Technology, Trondheim

Supervisor: Jacob Linder

Continued theoretical & numerical research on the master thesis topic.

2014 – 2016

Master in Optics and Condensed Matter Physics
Norwegian University of Science and Technology, Trondheim

Thesis: *Non-equilibrium quantum effects in hybrid structures of ferromagnets and superconductors*

Supervisor: Jacob Linder

7.5 ECTS extra: PhD course *Quantum Theory of Solids*.

2014
January – February

Student assistant
University of Amsterdam

Taught a physics laboratory course to bachelor students, prepared experimental equipment, corrected exams.

2012 – 2014
2014 March – June,
2013 February – July
2012 January – June

High school teaching assistant
Bredero College Amsterdam (General Science)
Bredero College Amsterdam (Physics)
Regius College Schagen (General Science)

Taught classes of 25–30 students aged 15 to 17, wrote study material and exercises, gave and corrected exams.

2010 – 2014

Bachelor in Physics and Astronomy
University of Amsterdam

Thesis: *Thermodynamic cycles in superconductors*

Supervisor: Theo M. Nieuwenhuizen

60 ECTS extra from the **Bachelor in Scandinavian Studies**, track Norwegian.

2008 – 2014

Web designer, IT administrator
Pruikenthuiszorg Nederland

2004 – 2010

Pre-university education
Jan van Egmond Lyceum, Purmerend

Double track: **Science and Technology** and **Science and Health**.

Additional courses: Art, Computer Science, extra Mathematics.

Computer skills

Software	Mathematica (+ + +), Matlab (+ + +), Origin (++), Highscore Plus (+), KLayout (+), Labview (+)
Programming/typesetting languages	Python (+ + +), LaTeX (+ + +), C (++), HTML/CSS (++), PHP (+), Javascript (+), SQL (+), Basic (+), GML (+)

Publications

2021

Superconducting V_3Si for quantum circuit applications
Tom Doekle Vethaak, Frederic Gustavo, Thierry Farjot, Tomas Kubart, Patrice Gergaud, Shili Zhang, François Lefloch, Fabrice Nemouchi
arXiv:2104.00694

2021

Influence of substrate-induced thermal stress on the superconducting properties of V_3Si thin films
Tom Doekle Vethaak, Frederic Gustavo, Thierry Farjot, Tomas Kubart, Patrice Gergaud, Shili Zhang, Fabrice Nemouchi, François Lefloch
Journal of Applied Physics ***129****, 105104*

2021 **Superconducting Polycrystalline Silicon Layer Obtained by Boron Implantation and Nanosecond Laser Annealing**
Richard Daubriac, Pablo Acosta Alba, Christophe Marcenat, Stephane Lequien, Tom Doekle Vethaak, Fabrice Nemouchi, François Lefloch and Sebastien Kerdilès
ECS Journal of Solid State Science and Technology ***10*** *014004*

2018 **Voltage-induced thin-film superconductivity in high magnetic fields**
Jabir Ali Ouassou, Tom Doekle Vethaak and Jacob Linder
Physical Review B ***98****, 144509*

Conferences

2021 **Characterization of superconducting transport in CMOS PtSi transistors for scalable qubits**
Oral presentation, planned
Tom D. Vethaak, Laurie E. Calvet, John P. Snyder, François Lefloch, *APS March Meeting 2021, online*

2020 **Superconducting V_3Si for upscaling Si Qbit technology**
Oral presentation
Tom Doekle Vethaak, Frederic Gustavo, Thierry Farjot, Tomas Kubart, Patrice Gergaud, Shili Zhang, Fabrice Nemouchi, François Lefloch, *29th Materials for Advanced Metallization conference, online*

2019 **Superconducting circuits in silicon technology**
Poster presentation
Tom Doekle Vethaak, Fabrice Nemouchi, François Lefloch, *Rencontres de Moriond, Moriond*

2019 **Superconducting circuits in silicon technology**
Poster presentation
Tom Doekle Vethaak, Fabrice Nemouchi, François Lefloch, *European Quantum Technologies Conference, Grenoble*

2018 & 2019 **Superconducting circuits in silicon technology**
Poster presentation
Tom Doekle Vethaak, Fabrice Nemouchi, François Lefloch, *GDR Quantum Mesoscopic Physics, Aussois*

Outreach

2019 – 2020 **A Quantum Engineer's Guide to Superconducting Qubits (doi: 10.1063/1.5089550)**
Four one-hour lectures based on this review, *CEA Grenoble*

2016 **FY8302 Quantum Theory of Solids**
Translated most of the 216-page handwritten lecture notes of the PhD course from Norwegian to English, and recruited other students to finish the project.