Tim Kamsma

Curriculum vitae

Personal details

Full name	Tim Maarten Kamsma
Birth date	5 December 1997
Nationality	Dutch
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Education

2019–2022 **Master Theoretical Physics**, *Utrecht University*, Honours double MSc programme.
Cum Laude

2019–2022 **Master Mathematical Sciences**, *Utrecht University*, Honours double MSc programme, Applied Mathematics, Complex Systems and Scientific Computing.
Cum Laude

2016–2019 **Bachelor physics and astrophysics**, *Utrecht University*.
Cum Laude

2016–2019 **Bachelor mathematics**, *Utrecht University*.
Cum Laude

2010–2016 **Gymnasium, N&G and N&T profile (natural sciences)**, *KSG De Breul*, Zeist.
Cum Laude, Best Science Student

Experience

Research

Sept. 2022 – Present **PhD Candidate**, *Utrecht University*, Institute for Theoretical Physics.
I was offered the unique and highly sought after opportunity to conduct research based on my own proposal with a personal grant. I work under the supervision of Prof. René van Roij (Institute for Theoretical Physics) and Dr. Cristian Spitoni (Mathematical Institute).

Jan. 2022 – July 2022 **Visiting Graduate Student**, *University of Cambridge*, Cambridge.
I was accepted by the University of Cambridge to join the research group of Dr. Alpha Lee the Department of Physics, where I worked on unravelling a new and poorly understood method of sustainable CO_2 capture in collaboration with the group of Dr. Alexander Forse.

Feb. 2019 – June 2019 **Research Intern**, *Netherlands Institute for Neuroscience*, Amsterdam.
Instead of a regular bachelor thesis, I got the chance to join the axonal signalling group led by Prof. Maarten Kole at the Netherlands Institute for Neuroscience to contribute to state of the art research with my own project.

(Some of my) Talks

Jan. 23rd 2024 **NWO Physics**, *Veldhoven*, Speaker at the Dutch national Physics conference in Veldhoven.

Nov. 11th 2023 **QBio Symposium**, *Utrecht University, Plenary Speaker*, Invited speaker at the QBio Honours programme Symposium..

June 21st 2023 **Faraday Discussions**, *University of Edinburgh, Plenary Speaker*, Speaker at the international 2023 Faraday Discussions conference "Iontronics: from fundamentals to ion-controlled devices".

May 3rd 2022 **UEA invited seminar**, *University of East Anglia, Norwich, Plenary Speaker*, Invited speaker at the UEA's "Big Talks": Physics/Math talks organized for the researchers and students at the UEA.

Education

2013–present **Private Tutor**.
I am regularly hired by personal contacts to be a tutor in science courses. I also receive multiple requests per year to tutor high school students by parents/students who heard of me via word of mouth. As a result, I work with a large variety of students from different schools and backgrounds.

2017–2021 **Teaching Assistant**, *Utrecht University*.
As a teaching assistant I oversee the problem sessions of physics and mathematics courses. I tutor the students and help them with any questions they may have. I also support the organisation of the course by attending meetings and offering my feedback.

2017–2021 **Teaching Assistant**, *SSL*, Leiden.
I guide high school students on a personal level during three day long intensive training sessions for their finals.

Publications

First-author papers

July 27th 2024 **A simple mathematical theory for Simple Volatile Memristors and their spiking circuits**, *Chaos, Solitons & Fractals*, Vol. 186.

June 5th 2024 **Chemically Regulated Conical Channel Synapse for Neuromorphic and Sensing Applications**, *arXiv preprint*, arXiv:2406.03195.

April 30th 2024 **Advanced iontronic spiking modes with multiscale diffusive dynamics in a fluidic circuit**, *Neuromorphic Computing and Engineering*, Vol. 4, 024003.

April 30th 2024 **Brain-inspired computing with fluidic iontronic nanochannels**, *Proceedings of the National Academy of Sciences*, Vol. 121, Issue 18.

July 5th 2023 **Unveiling the capabilities of bipolar conical channels in neuromorphic iontronics**, *Faraday Discussions*, Vol. 246, 125-140.

June 26th 2023 **Iontronic Neuromorphic Signaling with Conical Microfluidic Memristors**, *Physical Review Letters*, Vol. 130, Issue 26.

Other experiences

Jan. 2022 – July 2022 **Rowing coach**, *Caius Boat Club*, Cambridge.
During my research at the University of Cambridge I got involved as a coach with the Caius Boat Club, the boat club of the Gonville & Caius College. I also trained with their senior men's squad.

2019–2021 **Rowing coach**, *A.U.S.R. Orca*, Utrecht.
I coached the women's eight. Along with three fellow coaches I selected, trained and guided a crew of 8-10 rowers during an intensive and incredible year of high-performance sport.

2021 **Flow Traders business course**, *Flow Traders*, Amsterdam.
Out of over 200 applicants, I was selected as one of sixteen participants of the prestigious Flow Traders business course. This was a two day event, aimed to familiarize the participants with the high pressure environment of trading. Throughout the course there were brief moments to work with your group of four participants on a complex group assignment, requiring precise coordination between the members who did not know each other before the course. My group was the only group to finish the assignment and won the prize for best group.

2017–2019 **Student rower**, *A.U.S.R. Orca*, Utrecht.
I rowed for the lightweight men's eight. I trained 6 to 9 times a week in an eight with my crew and regularly went to national regattas.

Awards and certificates

GPS4S Grant — The "Graduate Programme Science for Sustainability" grants are competitive unique grants awarded to only a handful of excellent students across the Faculty of Science who write their own research proposals. I was awarded the GPS4S grant for my proposal on Neuromorphic Computing.

Best bachelor thesis presentation — All physics bachelor thesis presentations are held at a symposium. Out of the 41 presentations, the presentation of my thesis *"Physics and neuroscience, a fruitful fusion: A computational study on electrodiffusion in the periaxonal space"*, got selected by a jury of academics as the best presentation.

Best science student — At my high school, when graduating, I earned the award for the best science student out of all the graduating students (roughly 120 students).

Cambridge CPE — In 2016 I obtained a Cambridge Certificate of Proficiency in English (CPE) with grade B. CPE with a grade higher than or equal to a C, corresponds to a C2 level, the highest level in English according to the Common European Framework of Reference for Languages (CEFR).

U-Talent — I have a certificate from the U-Talent academy. This is a selective program for talented high school students with an affinity for science, where one gets acquainted with real scientific research both at Utrecht University and at school during the last three years of high school.

Languages

Dutch — **Native**

English — **Fluent (CEFR: C2)**

Computer skills

Excel	Advanced	Python	Experienced
Mathematica	Advanced	C#	Familiar with
Machine learning	Familiar with	C/C++	Familiar with

LaTeX	Advanced	Neuron	Experienced
Computer modelling	Experienced	COMSOL	Experienced

Hobbies

Rowing, playing the piano, various outdoor sport like cycling and mountain climbing, spending time with friends.