



Universiteit
Leiden
The Netherlands

Single-molecule fluorescence in sequence space

Severins, I.W.H.

Citation

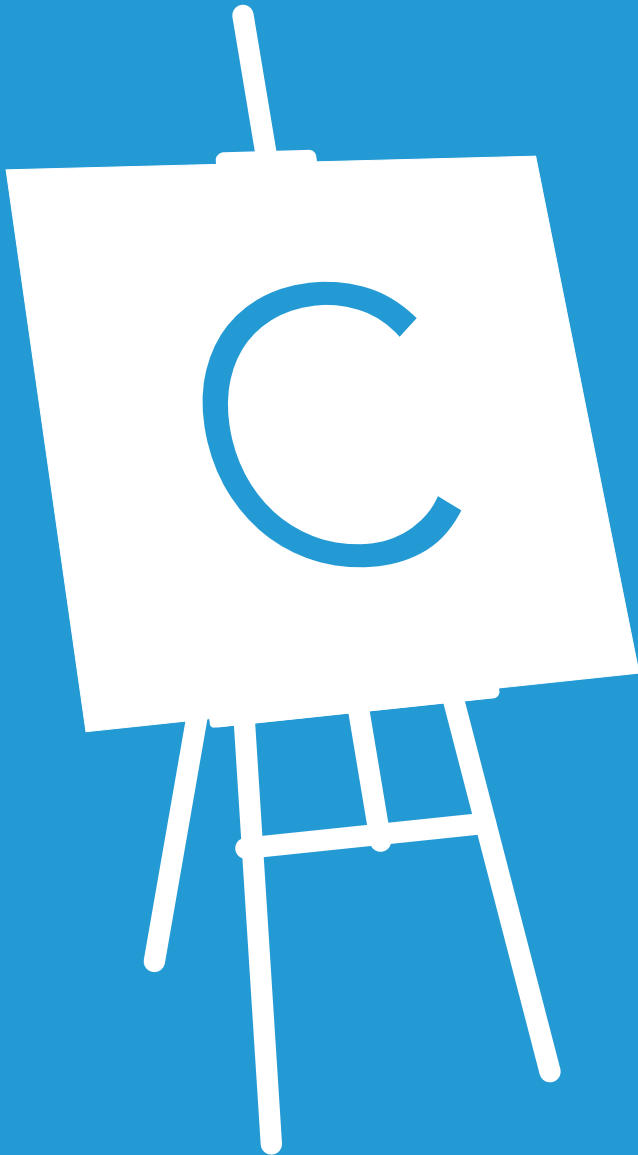
Severins, I. W. H. (2024, May 8). *Single-molecule fluorescence in sequence space*. Retrieved from <https://hdl.handle.net/1887/3753605>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/3753605>

Note: To cite this publication please use the final published version (if applicable).



Curriculum vitae

Curriculum vitae

- 2003-2009** **Preparatory scientific education (VWO)**
Veurs Lyceum, Leidschendam
- 2009-2013** **Bachelor of Science**
Applied physics
Technische Universiteit Delft
- Thesis:* *Cell-free protein expression in PDMS microchambers*
Christophe Danelon Lab, Technische Universiteit Delft
- 2010-2013** **Bachelor of Science**
Biomedical Sciences
Universiteit Leiden
- Thesis:* *Dynamic behaviour of nidovirus replication structures*
Bram Koster lab, Leiden University Medical Center
- 2013-2016** **Master of Science**
Applied Physics
Technische Universiteit Delft
- Thesis:* *Towards multiplex single-molecule FRET studies using*
oligonucleotide barcodes
Chirlmin Joo lab, Technische Universiteit Delft
- Internship:* *Cosine Measurement Systems, Warmond*
- 2017-2024** **Doctor of Philosophy**
Single-molecule biophysics
Universiteit Leiden & Technische Universiteit Delft
- Thesis:* *Single-molecule fluorescence in sequence space*
Chirlmin Joo lab, Technische Universiteit Delft
John van Noort lab, Universiteit Leiden
- 2022-2024** **Researcher**
Single-molecule biophysics
Technische Universiteit Delft

List of publications

Ivo Severins, Malwina Szczepaniak, and Chirlmin Joo. 2018. "Multiplex Single-Molecule DNA Barcoding Using an Oligonucleotide Ligation Assay." *Biophysical Journal* 115 (6): 957–67. <https://doi.org/10.1016/j.bpj.2018.08.013>.

Mike Filius, Sung Hyun Kim, Ivo Severins, and Chirlmin Joo. 2021. "High-Resolution Single-Molecule FRET via DNA eXchange (FRET X)." *Nano Letters* 21 (7): 3295–3301. <https://doi.org/10.1021/acs.nanolett.1c00725>.

Ivo Severins, Chirlmin Joo, and John van Noort. 2022. "Exploring Molecular Biology in Sequence Space: The Road to next-Generation Single-Molecule Biophysics." *Molecular Cell* 82 (10): 1788–1805. <https://doi.org/10.1016/j.molcel.2022.04.024>.

Ivo Severins, Carolien Bastiaanssen, Sung Hyun Kim, Roy B. Simons, John van Noort, Chirlmin Joo. "Single-molecule structural and kinetic studies across sequence space." *Submitted*



Acknowledgements

Acknowledgements

A PhD thesis, like a biological process, is the result of a long cascade of interactions, each one contributing to the final product and thus deserving a word of gratitude.

First to my family. Mom and Dad, thank you for the excellent start you have given me and for all your love and support. Although you did not teach me how to be a scientist, you gave me everything I needed to become one. Also to my sister Isabelle, uncle Harold and aunt Mariëtte and cousins Chayenne, Eline and Danique: although you did not contribute directly to the thesis, I could always fall back on you to laugh and relax. With you I feel at ease, giving me a strong basis to venture out from.

To my friends Marcel and Thomas, whom I have known since secondary school, and Stephan, Jelmer and Peter, who completed our group during our studies. Thank you for all the fun and the welcome distractions from PhD life.

Also thanks to the people in Chirlmin's lab prior to my PhD thesis: Stanley, Jetty, Anna, Pawel, Viktorija, Laura, Mo, Luuk, Mike, Thijs, Mathia and Michaela for making me feel at home. You were an important reason to rejoin the lab. Especially to Malwina, my Master's thesis supervisor: you taught me the basics of single-molecule fluorescence research, which formed the basis of my PhD.

During my PhD I had the privilege to get to know and work together with many amazing people. It is difficult to express how much I have appreciated your company over the past years.

Carolien, my partner in crime in developing SPARXS. Thank you for the wonderful and smooth collaboration, which made the process almost feel easy. I appreciate your company and I enjoyed solving all those technical problems together. We shared a lot of frustrations, but in the end we made it work.

To all my office companions, thank you for the nice time spent together. Especially to Mike, Sung Hyun and Ilja: when we first met during my Bachelor's and Master's projects, who would have thought that we would end up in the same office years later; I am glad that we did though.

Mike, thank you for all the enjoyable and interesting conversations, for the fun experiments together, and for many lab events involving a barbecue. Probably without you knowing, you taught me a lot both in- and outside science.

Sung Hyun, I thoroughly enjoyed your company and our conversations. Thank you for your kindness, friendliness and of course for reintroducing the magnificent coffee moments in the lab.

Ilja, I was happy that you joined Chirlmin's lab, as you are a lot of fun and easy to talk with. Thank you for all the laughs and nice conversations.

To the people in Delft: Stanley, Luuk, Mo, Hamza, Eve, Dimitri, Adi, Laura, Misha, Alessia, Iasonas, Dong Hoon, Thijs, Sungchul, Viktorija, Adam, Cecilia, Jack, Jan, Margreet, Bhagyashree, Kijun, Koushik, Carlos, Moon Hyeok, Archana; and in Leiden: Klaas, Kirsten, Artur, Redmar, Chi, Thomas, Babette, Gert-Jan, Jeremy, Natalia, Yvonne, Julia, Radek, Marleen, Joeri, Maria, Mazène, Noémie, Andreea, Patrick, Esmée and Rick. Thank you for all the nice moments, events, conversations and laughs that we shared together and for all your kindness, suggestions and

help. Special thanks to the organizers of the amazing group retreats: Mike, Thijs, Iasonas, Carolien, Bhagyashree, Koushik and Moon Hyeok; and to Mike, Thijs, Redmar, Joeri, Carlos and Carolien for making our joint conferences into unforgettable adventures.

Over the years I got to know many students that joined the lab in Delft: Berkalp, Nicola, Chun, Anna, Sabina, Isabell, Frank, Pim, Raman, Melis, Anna, Anne-Wietje, David, Rochelle, Erwin, Lois, Justine, Natalie, Rowan, Amina, Maya, Berey, Sinan, Meryem; and in Leiden: Dion, Tjerk, Annelies, Iris, Margherita, Aditya, Twan, Benjamin and Beatriz. Thank you all for the pleasant and friendly interactions. Special thanks to the students who took the leap to do their graduation projects with me: Marjolein, Roy and Otto. I hope you learned as much from me as I learned from you.

Finally, Chirlmin and John, without you this thesis would not exist. Two supervisors, two labs and two locations did not always make things easy, but taught me a lot from both the differences and similarities. Chirlmin, I have a lot of respect for the amount of freedom, confidence and care you give to your students, and for your ability to listen well. John, I value your eye for detail, your technical knowledge and close involvement with the people in your group. Thank you for your guidance and for having the confidence in me to take on this project.