

RESEARCH INTERESTS

multiplex functional assays, gene synthesis, sequence-function relationships, protein engineering, biosensing

EDUCATION

- **University of California - Los Angeles** Los Angeles, CA, USA
BWF CASI Postdoctoral Fellow in Biochemistry. Advisor: *Sri Kosuri* 2015 - present
- **Delft University of Technology** Delft, Netherlands
PhD Cum Laude in BioNanoscience and Biophysics. Advisor: *Cees Dekker* 2010 - 2015
- **Chalmers University of Technology** Gothenburg, Sweden
M.Sc. of Nanoscale Science and Technology. Advisor: *Bengt Nordén* 2009 - 2010
- **Delft University of Technology** Delft, Netherlands
M.Sc. of Nanoscience and Nanotechnology (Year 1) 2008 - 2009
- **Simon Fraser University** Vancouver, BC, Canada
Bachelor of Applied Science in Engineering Physics (Honours). Advisor: *Ash Parameswaran* 2002 - 2008

GRANTS AND FELLOWSHIPS

- **Burroughs Wellcome Fund - Career Awards at the Scientific Interface \$500k (Success rate 4%)** 2018-now
Ubiquitous biosensing through engineered histidine kinases
- Human Frontier Science Program (HFSP) Long-Term Fellowship \$160k (Success rate 10%) 2016-now
- NWO Rubicon Fellowship €134k (Success rate 18%) 2016-2018

PUBLICATIONS

Also available on Google Scholar profile: <https://scholar.google.com/citations?user=Y Ea9hDQAAAAAJ>

- Multiplexed Gene Synthesis in Emulsions for Exploring Protein Functional Landscapes
C. Plesa[†], A.M. Sidore[†], N. Lubock, D. Zhang, S. Kosuri
Science 359 (6373) pp 343-347, 2018.
Highlighted in: Nature Methods, Nature Reviews Genetics, Nature Nanotechnology, RSC Chemistry World, ACS C&EN.
- Direct observation of DNA knots using solid state nanopores
C. Plesa, D. Verschueren, J.W. Ruitenber, M.J. Witteveen, M.P. Jonsson, A.Y. Grosberg, Y. Rabin, and C. Dekker
Nature Nanotechnology 11 (12), pp 1093-1097, 2016.
Highlighted in Nature Reviews Materials.
- Self-aligned plasmonic nanopores by optically controlled dielectric breakdown
S. Pud, D. Verschueren, N. Vukovic, C. Plesa, M. P. Jonsson, and C. Dekker
Nano Letters 15 (10) pp 7112-7117, 2015.
- Single-molecule sensing with nanopores
M. Muthukumar, C. Plesa, and C. Dekker
Physics Today, 68 (8) 40, 2015 doi:10.1063/PT.3.2881
- DNA nanopore translocation in Glutamate solutions
C. Plesa, N. Loo, and C. Dekker
Nanoscale, 7, pp 13605-13609, 2015.

- Detection of individual proteins bound along DNA using solid state nanopores
C. Plesa, J.W. Ruitenbergh, M.J. Witteveen, and C. Dekker
Nano Letters 15 (5) pp 3153-3158, 2015.
- Data analysis methods for solid-state nanopores
C. Plesa and C. Dekker
Nanotechnology 26, 084003, 2015.
- Velocity of DNA during translocation through a solid state nanopore
C. Plesa, N. Loo, P. Ketterer, H. Dietz, and C. Dekker
Nano Letters 15 (1) pp 732-737, 2015.
- Ionic Permeability and Mechanical Properties of DNA Origami Nanoplates on Solid-State Nanopores
C. Plesa, A.N. Ananth, V. Linko, C. Gülcher, A.J. Katan, H. Dietz, and C. Dekker
ACS Nano 8 (1), 35-43, 2013.
- Non-equilibrium folding of individual DNA molecules recaptured up to 1000 times in a solid state nanopore
C. Plesa, L. Cornelissen, M.W. Tuijtel, and C. Dekker
Nanotechnology 24 (47), 475101, 2013.
- Fast Translocation of Proteins through Solid State Nanopores
C. Plesa, S.W. Kowalczyk, R. Zinsmeister, A.Y. Grosberg, Y. Rabin, and C. Dekker
Nano Letters 13 (2), pp 658-663, 2013.
- Rapid manufacturing of low-noise membranes for nanopore sensors by trans-chip illumination lithography
X. J.A. Janssen, M.P. Jonsson, C. Plesa, G.V. Soni, C. Dekker and N.H. Dekker
Nanotechnology 23, 475302, 2012.
- Nanofabrication Yields. Hybridization and Click-Fixation of Polycyclic DNA Nanoassemblies
E.P. Lundberg, C. Plesa, L.M. Wilhelmsson, P. Lincoln, T. Brown, and B. Nordén
ACS Nano 5 (9), 7565-7575, 2011.

MANUSCRIPTS IN PREPARATION

- DropSynth 2.0: high-fidelity, large-scale multiplexed gene synthesis
A.M. Sidore[†], C. Plesa[†], J.A. Samson, S. Kosuri. Preprint soon.

SELECTED PRESENTATIONS

- Next Generation Symposium in Biomedicine, Broad Institute of MIT and Harvard..... Boston, USA 2018
- Protein Society's 32nd Annual Symposium..... Boston, USA 2018
- Winter Q-Bio..... Maui, USA 2018
- KITP: Eco-Evolutionary Dynamics in Nature and the Lab..... Santa Barbara, USA 2017
- Synberc 10..... Berkeley, USA 2016
- Illumina..... San Diego, USA 2015
- Biophysical Society 59th Annual Meeting..... Baltimore, USA 2015
- Dutch Biophysics..... Veldhoven, Netherlands 2014
- Significance of Knotted Structures for Function of Proteins and Nucleic Acids..... Warsaw, Poland 2014
- Biophysical Society 58th Annual Meeting..... San Francisco, USA 2014
- WE Heraeus Seminar 541: Transport through Nanopores..... Bremen, Germany 2013
- CECAM Workshop: DNA sequencing and detection with nanopores..... Pisa, Italy 2012
- Zing Nanopores Conference..... Lanzarote, Spain 2012
- Dutch Biophysics..... Veldhoven, Netherlands 2011
- Transducer Research Foundation Hilton Head..... Hilton Head, USA 2008
- CMC Microsystems TEXPO 2007..... Ottawa, Canada 2007

HONORS AND AWARDS

- UCLA Chancellor's Award for Postdoctoral Research 2018
- PhD awarded with highest distinction, Cum Laude, Delft University of Technology 2015
- Outstanding Poster Award at BPS: Significance of Knotted Structures for Function of Proteins and Nucleic Acids 2014
- iGEM Best information processing project award 2009
- Erasmus Mundus Scholarship 2008-2009
- NSERC Undergraduate Student Research Award 2007
- Simon Fraser University Summit Scholarship 2002
- BC Provincial Scholarship 2002

TEACHING AND MENTORING

- TUDelft, iGEM Team, Co-Supervisor/Teaching Assistant 2012-2014
- TUDelft, Statistical Physics. Teaching Assistant 2011
- Mentoring students. *Graduate*: Angus Sidore (2016-now). *Undergraduate*: Teun Huijben (2015), Nick van Loo (2014), Maryse Bouwens (2013), Erik Gaarenstroom (2012), Ruben Zinsmeester (2011), Sanne de Jongh (2011). *Research assistants*: Joyce Anne Samson (2018-now), Just Ruitenbergh (2013), Menno Witteveen (2013), Ludo Cornelissen (2012), Maarten Tuijtel (2012).

PROFESSIONAL ACTIVITIES

- Ad hoc reviewer for: Nature Communications, Scientific Reports, Polymers (MDPI), Proteomics
- Affiliations: Protein Society, American Society for Microbiology, Biophysical Society (2013-2015)