

NeuroPhysics Kickoff

Friday March 7th 2025



- 2:00 – 2:45 pm

Plenary Lecture (Spectrum 5, VO building)
Lukas Kapitein – Utrecht University, Department of Biology
"Using light to dissect and direct cellular organization"
- 2:45 – 3:10 pm

Refreshment break (Spectrum 5 foyer)
- 3:10 – 3: 20 pm

Opening remarks from our directors (Spectrum 5)
Guus Smit (Neurosciences) & Juan Rojo (Physics & Astronomy)
"Establishing a NeuroPhysics working group at the VO & exploring opportunities for technological collaboration"
- 3:20 – 4:10 pm

Flash-talks from our PIs (Spectrum 5)

Presenter	Title	Department
3:20 Harold MacGillavry	<i>Nanoscale dynamics at the synapse</i>	CNCR – MCN
3:25 Erwin Peterman	<i>Single-molecule imaging of intracellular transport in living <i>C. elegans</i></i>	Physics of Living Systems
3:30 Angela Getz	<i>New tools & techniques for studying synapses in intact networks</i>	CNCR – FGA
3:35 Jan van Weering	<i>Supercool nanostructure</i>	CNCR – FGA
3:40 Andrea Baldi	<i>Applied plasmonics</i>	Photo-Conversion Materials
3:45 Niels Cornelisse	<i>Human neurons on a chip</i>	CNCR – FGA
3:50 Michel van den Oever	<i>Dissection of memory circuits in the brain</i>	CNCR – MCN
3:55 Imran Avci	<i>ELEANOR: An All-optical Approach for Measuring Dendritic & Synaptic Properties in Human Neuronal Signal Processing</i>	Biophotonics and Medical Imaging
4:00 Claudia Persoon	<i>Bridging Academia & Industry: accelerating drug development for neurological disorders</i>	Neurospector

- 4:15-5:15 pm

Poster session from our trainees (VO event spot, ground floor atrium)
- 5:15 pm

NeuroPhysics pub quiz
Hosts: Dimitris Samouil, Maxime Malivert
- 5:30 pm

Closing remarks from the organizers
Matz Liebel, Angela Getz, Amélie Freal, Harold MacGillavry

Poster Session

Presenter	Title	Key Words	Department	PI
Vivienne Bauer	<i>Axonal mRNA Localisation and Local Translation - Investigating the Regulatory Role of the ER</i>	mRNA localisation, local translation, endoplasmic reticulum, proximity proteomics, Microfluidic Devices	CNCR – FGA	Max Koppers
Ana Carreras Mascaro	<i>Neurospector: bridging academia and industry</i>	preclinical testing, drug screening, neurological disorders	Neurospector	Claudia Persoon
Naomi Duits	<i>4D imaging of human lung tissue using higher harmonic generation microscopy</i>	higher harmonic generation microscopy, second & third harmonic generation, autofluorescence, timelapse imaging, precision-cut lung slices	Biophotonics and Medical Imaging	Marloes Groot
Guus Haasnoot	<i>Environmental cues cause morphological changes in chemosensory cilia</i>	C. elegans, Chemosensory neurons, Cilia, Intraflagellar transport, Signalling pathway, GPCR, G-proteins, Calcium imaging	Physics of Living Systems	Erwin Peterman
Bram Hoogland	<i>Data-Driven inference of Collective Cell Migration</i>	Cell-Cell Interactions, Data-Driven, Collective Migration	Physics of Living Systems	Chase Broedersz
Sarah Lozano Seoane	<i>Brain hub alteration and shift across disorders</i>	functional MRI; connectivity; brain disorders; brain hubs	CNCR – CTG	Martijn van den Heuvel
Yuan Yuan Ma	<i>4D Cell Dynamics in Human Lung Tissue Cultures by Label-free Higher Harmonic Generation Microscopy</i>	4D, Cell Dynamics, Label-free, Higher Harmonic Generation Microscopy, Human Lung	Biophotonics and Medical Imaging	Marloes Groot
Maxime Malivert	<i>Dynamic nanoscale organization of endogenous AMPA receptors in brain slices</i>	Lattice light-sheet microscopy; Single-molecule localization microscopy; Single Particle Tracking; Adaptive Optics	CNCR – FGA	Angela Getz
Guobin Miao	<i>Plasmonic Photothermal Catalysis Reactor System with In-situ Mass Spectrometry and Raman Spectroscopy Characterizations</i>	plasmonic photothermal catalysis, mass spectrometry, Raman spectroscopy	Photo-Conversion Materials	Sven Askes
Miranda Moore	<i>How Busy is Your Brain?</i>	electrophysiology, intelligence, excitability	CNCR – INF	Natalia Goriounova
Salina Quack	<i>An alternative mechanism for activation of innate immune signaling by MDA5</i>	Innate immunity, single-molecule biophysics, high-throughput magnetic tweezers, viral dsRNA, MDA5	Physics of Living Systems	David Dulin

Dimitris Samouil	<i>How does postsynaptic mGluR localization and dynamics modulate synaptic transmission and plasticity?</i>	Glutamate receptors, Super-resolution imaging, live-cell imaging	CNCR – MCN	Harold MacGillavry
Jack Smith	<i>DARS2 compound heterozygosity in the UKB</i>	UK biobank, Compound heterozygosity, Leukodystrophy, Carrier prevalence	CNCR – CTG	Sophie van der Sluis
Sylvia Spies	<i>From Physics to Physicians: Higher Harmonic Generation Microscopy for Intra-Operative Tumor Assessment</i>	higher harmonic generation, second & third harmonic generation, autofluorescence, tumors, histology	Biophotonics and Medical Imaging	Marloes Groot
Tjerk Swinkels	<i>The Role of Sodium Channel Beta Subunit Expression in Sodium Current Activation/Inactivation in Human Neurons</i>	Ion channels, sodium currents, human intelligence	CNCR – INF	Natalia Goriounova
Femke Waleboer	<i>Classify ME: machine learning approach to predict AIBS cell types using morpho-electric data</i>	Random forest classifier, cell types, neurophysiology	CNCR – INF	Christiaan de Kock
Daan Wolters & Dennis van de Lockand	<i>Digital holography, Raman and vibrational Imaging: Current research ongoing at the Matz Lab</i>	Dry mass density, holographic imaging, Infrared spectrum, label-free, high throughput	Biophotonics and Medical Imaging	Matz Liebel
Mengyao Zhou	<i>Deep learning-Based 3D Leukocyte differentiation Using Label-Free Higher Harmonic Generation Microscopy</i>	Bronchoalveolar lavage fluid, blood fraction, deep learning, higher harmonic generation microscopy, leukocyte differentiation	Biophotonics and Medical Imaging	Marloes Groot