3-4 OCTOBER 2016
NH KONINGSHOF
VELDHOVEN
THE NETHERLANDS

DUTCHBIOPHYSICS

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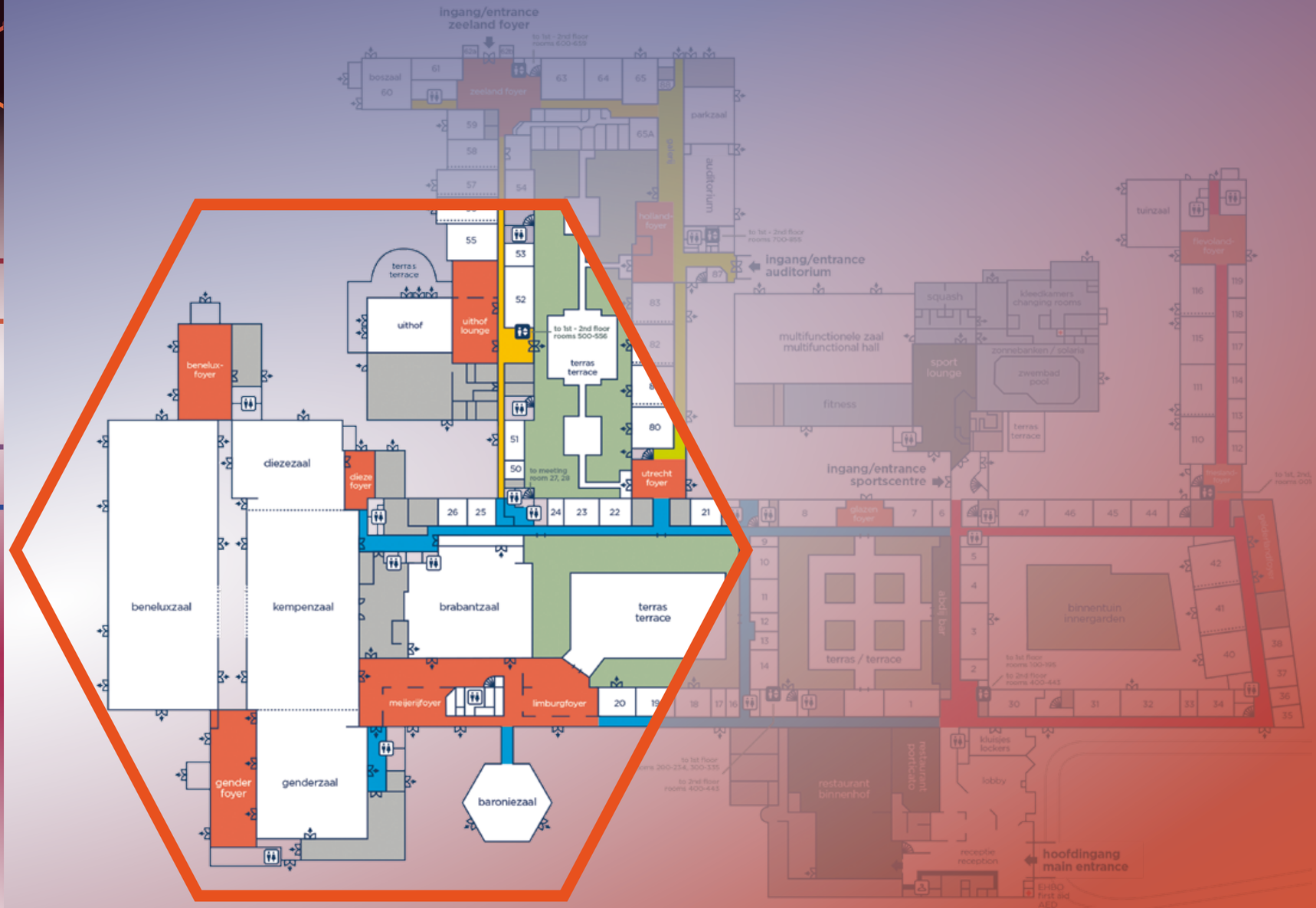

DUTCH BIOPHYSICS

THE ANNUAL DUTCH MEETING ON MOLECULAR AND CELLULAR BIOPHYSICS

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PICTURES

All official DutchBiophysics photos will be made available to the participants in the week after the congress. You can find the photo album via www. fom.nl/biophysics.

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WELCOME TO DUTCHBIOPHYSICS 2016

This annual meeting brings together groups that work on molecular and cellular biophysics and microscopy in the Netherlands. The programme covers a large variety of topics, such as the biophysics of living cells and their membranes, the cytoskeleton, molecular motors, DNA/RNA-protein interactions, theoretical biophysics, systems biology and networks, photosynthesis, and new developments in light and electron microscopy, imaging and spectroscopy, force probes, (bio) chemical synthesis, nanotechnology, biomedical engineering and applications.

With such a broad range of topics, addressed in 8 plenary talks, 12 parallel sessions with 54 presentations, and over 200 posters, we trust these two days will be interesting for every participant.

ORGANISING PARTNERS

DutchBiophysics is organised by the Foundation for Fundamental Research on Matter (FOM) and NWO Earth and Life Sciences (NWO-ALW), in collaboration with the Netherlands Society for Microscopy (NVvM) and the Society for Biophysics and Biomedical Engineering (BIOPM).

If you have any questions, feel free to visit the registration desk, contact us via biophysics@fom.nl, or tweet your question to @FOMPhysics using #DutchBiophysics.

We wish you a pleasant and inspiring meeting!

www.fom.nl
www.nwo.nl/alw
www.microscopie.nl
www.biopm.nl

DUTCH**BIOPHYSICS 2016**

PROGRAMME **MONDAY 3 OCTOBER**

09.30 – 10.30 ARRIVAL / REGISTRATION / COFFEE & TEA — ROOM **KEMPENZAAL**

10.35 – 10.45 OPENING — ROOM **BRABANTZAAL**

10.45 – 11.15 I.1 **ERWIN FREY** (Ludwig-Maximilians-Universität München) — ROOM **BRABANTZAAL**
Generic design principles of protein pattern formation in cellular systems

11.20 – 11.50 I.2 **CLIFFORD BRANGWYNNE** (Princeton University) — ROOM **BRABANTZAAL**
Measuring the intracellular dew point: phase transitions in cells

11.55 – 12.25 I.3 **CHRISTOPHE DANELON** (Delft University of Technology) — ROOM **BRABANTZAAL**
Roadmap to a synthetic cell

12.30 – 13.25 LUNCH — ROOM **KEMPENZAAL**

ROOM	BRABANTZAAL	BARONIEZAAL	GENDER FOYER	DIEZEZAAL	BENELUX FOYER
SESSION	SINGLE MOLECULE MICROSCOPY	COLLECTIVE MOTION	PHOTOSYSTEMS	NANOMECHANICS	BIOMEDICAL ENGINEERING I
13.30 – 13.50	O.01 **M.W. PAUL** (EMC) Visualizing mechanisms of DNA double strand break repair by nanoscopy	O.04 **K.A. WOLF** (RIMLS) Nuclear envelope rupture and repair during cancer cell migration	O.07 **L.S. VAN BEZOUWEN** (RUG) Subunit and chlorophyll organization of the plant photosystem II supercomplex	O.10 **B.E. VOS** (AMOLF) Pulling and patching single fibrin fibers using optical tweezers	O.13 Thesis award ceremony of the Dutch Society for Biophysics and Biomedical Engineering
13.50 – 14.10	O.02 **A.B. SEINEN** (RUG) Single molecule imaging of the dynamics of the Sec translocase in living cells	O.05 **G. QUARANTA** (TUD) Hydrodynamics versus intracellular coupling in the synchronization of eukaryotic flagella	O.08 **F.J. VAN EERDEN** (RUG) Simulation of photosystem II dynamics in the thylakoid membrane	O.11 **C.P. MOERLAND** (TU/e) Conformation switching of native proteins observed in single-molecule nanomechanical experiments	O.14 **T.A. HARTJES** (EMC) EVQuant: a novel extracellular vesicle quantification assay for scientific and diagnostic use
14.10 – 14.30	O.03 **S. KIENLE** (AMOLF) Quantitative analysis of stochastic gene expression dynamics during C. elegans development	O.06 **D.J.G. PEARCE** (LEI) Shape and efficiency in motile sperm groups	O.09 **N. LIGUORI** (VU) Natural and engineered molecular switches in the light-harvesting complexes of plants and algae	O.12 **D. DENNING** (VU) Mechanical and thermal properties of Adenovirus is affected by protein VI and the capsid penton base	O.15 **A. REYES REYES** (TUD) Smelling diseases using quantum cascade laser spectroscopy. Shining light on human breath analysis

14.30 – 14.55 COFFEE & TEA — ROOM **KEMPENZAAL**

ROOM	BRABANTZAAL	BARONIEZAAL	GENDER FOYER	DIEZEZAAL	BENELUX FOYER
SESSION	ELECTRON MICROSCOPY	INTRACELLULAR TRANSPORT	SPECTROSCOPY	MECHANICAL REGULATION	BIOMEDICAL ENGINEERING II
15.00 – 15.20	O.16 **C. MELIA** (LUMC) Tracking infections of a positive-sense RNA virus that can replicate without replication organelles	O.19 **R.P. TAS** (UU) Unraveling neuronal microtubule organization using a new method to determine microtubule polarity	O.22 **M. KLOZ** (VU) Spectral watermarking approach to femtosecond Raman spectroscopy	O.25 **Y. MULLA** (AMOLF) Catch bonds – how do weaker bonds make stronger networks	O.28 **M.C.E. VAN DALEN** (UT) A protein specific effect of amyloid micronetworks for cartilage tissue engineering
15.20 – 15.40	O.17 **J. FOKKEMA** (UU) Fluorescently labeled silica coated gold nanoparticles as fiducials for correlative microscopy	O.20 **J. VAN KRUGTEN** (VU) Turns at the tip: single-molecule dynamics of IFT particles and motors at C. elegans ciliary tip	O.23 **Y.L.A. REZUS** (AMOLF) Temperature-induced collapse of elastin-like peptides studied by 2DIR spectroscopy	O.26 **O. IENDALTSEVA** (LEI) Force sensing and transmission in human induced pluripotent stem cell-derived pericytes	O.29 **D. RAMEKERS** (UMCU) Assessing firing properties of the electrically stimulated auditory nerve using a convolution model
15.40 – 16.00	O.18 **Y. KABIRI** (TUD) Novel transmission electron microscopy of unstained DNA origami on graphene and carbon substrates	O.21 **M. HARTERINK** (UU) Light induced transport to study neuronal polarity in C. elegans	O.24 **B.F. VAN OORT** (VU) Hidden electronic states in plant pigment-protein complexes	O.27 **M. HASHEMI SHABESTARI** (VU) Exploring the folding-driven secretion mechanism of Hbp protein using single-molecule AFM	O.30 **Z. ZHANG** (VU) Extracting morphologies from third harmonic generation images of normal human brain tissue

16.00 – 18.00 POSTERSESSION 1 (ODD NUMBERS) — ROOM **KEMPENZAAL**

18.00 – 19.30 DINNER — ROOM **BENELUXZAAL**

19.30 – 19.50 COFFEE & TEA — ROOM **KEMPENZAAL**

19.50 – 20.00 THESIS AWARD CEREMONY OF THE DUTCH SOCIETY FOR BIOPHYSICS AND BIOMEDICAL ENGINEERING — ROOM **BRABANTZAAL**

20.00 – 21.00 I.4 **LIPINCOTT-SCHWARTZ** (National Institute of Health, Bethesda) — ROOM **BRABANTZAAL**
Emerging fluorescence technology to study the spatial and temporal dynamics of organelles within cells

PROGRAMME **TUESDAY 4 OCTOBER**

9.00 – 9.30 I.5 **PETER ZIJLSTRA** (Eindhoven University of Technology) — ROOM **BRABANTZAAL**
Seeing the invisible: single-molecule detection using plasmonic nanoparticles

9.35-10.05 I.6 **PATRICIA BASSEREAU** (Institut Curie, Paris) — ROOM **BRABANTZAAL**
Cell membrane shaping by BAR-domain proteins

10.10 – 10.25 COFFEE & TEA — ROOM **KEMPENZAAL**

ROOM	BRABANTZAAL	BARONIEZAAL	GENDER FOYER	DIEZEZAAL
SESSION	SUPER-RESOLUTION MICROSCOPY	CELL MORPHOLOGY	HIGH-THROUGHPUT METHODS	MOLECULAR INTERACTIONS
10.30 – 10.50	O.31 **H. HEYDARIAN** (TUD) Lambda/100 resolution by template-free 2D particle fusion in localization microscopy	O.34 **T. VAZQUEZ FACI** (TUD) Mechanical interactions in the early development of insect embryos	O.37 **C. FIJEN** (WUR) Nanofluidic devices for high-throughput analysis of single fluorescent molecules	O.40 **S.K. THANGARAJ** (UT) Alpha-synuclein and its interaction with cytoskeleton proteins: implications in Parkinson's disease
10.50 – 11.10	O.32 **H. DE KEERSMAECKER** (KU Leuven) Nanoscale interaction mapping in living cells	O.35 **K.K. SCHAKENRAAD** (LEI) The role of anisotropy in cell morphology	O.38 **D. KAMSMA** (VU) Tuning the music: acoustic force spectroscopy (AFS) 2.0	O.41 **A.S. OUDE VRIELINK** (TU/e) High mechanical stability of bacterial adhesins lacking H-bonded H'- and C'-terminal beta-strands
11.10 – 11.30	O.33 **M.B.M. MEDDENS** (UNM) Single objective light-sheet microscopy for high-speed whole-cell 3D super-resolution	O.36 **A.B.C. BUSKERMOLEN** (TU/e) Unraveling the mechanisms behind cellular anisotropy sensing	O.39 **T.B. BROUWER** (LEI) Phase-tracker: a novel bead tracking algorithm for multiplexed magnetic tweezers	O.42 **M.A. BEUWER** (TU/e) Mechanical properties of single supramolecular polymers from correlative AFM and TIRF microscopy

11.30 – 13.25 POSTERSESSION 2 (EVEN NUMBERS) AND LUNCH — ROOM **KEMPENZAAL**

NVvM PROGRAMME:

11.45 – 12.15 - NVvM GENERAL ASSEMBLY — ROOM **DIEZEZAAL**

12.30 – 13.00 - NL-BIOIMAGING ADVANCED MICROSCOPY MEETING — ROOM **DIEZEZAAL**

ROOM	BRABANTZAAL	BARONIEZAAL	GENDER FOYER	DIEZEZAAL
SESSION	CELLULAR IMAGING	MEMBRANES	PROTEIN STRUCTURES	DNA ORGANIZATION
13.30 – 13.50	O.43 **C.P. FRIAS** (UU) Semaphorin Sema4D promotes inhibitory presynaptic bouton stabilization by regulating actin	O.46 **C.M. VAN DER WEL** (LEI) Lipid membrane mediated attraction between curvature inducing objects	O.49 **V. VAN MEERVELT** (RUG) Observing protein orientation and conformational changes inside a nanopore test-tube	O.52 **M. MARCHETTI** (VU) Illuminating the DNA-binding dynamics of single RNAPs during the promoter search process
13.50 – 14.10	O.44 **L. FIELMICH** (UU) Shedding light on mitotic spindle positioning in asymmetric cell division	O.47 **S.R. DESHPANDE** (TUD) Efficient and symmetric liposome division using a microfluidic splitter	O.50 **E. VAN DIJK** (VU) Consistent treatment of hydrophobicity in protein lattice models accounts for cold denaturation	O.53 **A.P. KACZMARCZYK** (LEI/TUD) Unravelling the role of the H4-tail and the linker histone H1 in chromatin (un-)folding
14.10 – 14.30	O.45 **J.M. KEEGSTRA** (AMOLF) Direct measurements of variability in a bacterial signaling network by FRET in single cells	O.48 **V.M. MARIN** (TUD) Lipid nanotubes pulled from freestanding lipid membranes	O.51 **A. AHER** (UU) CPAP/SAS-4 mediated centriole length regulation: Insights from structure and in vitro reconstitution	O.54 **N. HERMANS** (LEI) Insights in the structure and composition of selected chromatin fragments from yeast

14.35 – 15.05 I.7 **MARK ELLISMAN** (University of California San Diego) — ROOM **BRABANTZAAL**
Toward making the invisible and complicated understandable: microscopy across scales and modalities

15.10 – 15.40 I.8 **MARLOES GROOT** (VU Amsterdam) — ROOM **BRABANTZAAL**
Label-free, real-time pathology with higher harmonic generation imaging

15.45 – 15.55 CLOSING REMARKS & POSTER PRIZE AWARD — ROOM **BRABANTZAAL**