Jury report
Pieter Langerhuizen Lambertuszoon Fonds 2020 – Physics

This year the *Pieter Langerhuizen Lambertuszoon Fonds* allocated funding to support activities in the discipline of physics. Four proposals were received. The proposals were for financing equipment, executing a specific pilot study or facilitating student participation in a research competition. The proposals were very different in nature and of high quality. After careful deliberations, the jury unanimously decided to award Dr. K.A. (Kristina) Ganzinger, group leader in Physics of Cellular Interactions at the NWO institute AMOLF in Amsterdam with the 2020 *Pieter Langerhuizen Lambertuszoon bate* of € 25.000.

Kristina Ganzinger obtained her Bachelor and Master degrees in Biochemistry in Münich at the Technical University there. After a Erasmus Fellowship for student exchange to Cambridge, and I guess a lot of hard work thereafter, she received a PhD in Biophysical Chemistry, from the University of Cambridge in 2015, studying Protein Organisation and Interactions in Cell Membranes at the Single-Molecule Level.

She continued her research as a postdoc in Department for Molecular and Cellular Biophysics, at the Max Planck Institute for Biochemistry, in Martinsried, Germany.

Two years ago, she started her own group at the NWO research institute AMOLF in the Physics of Cellular Interactions.

Kristina Ganzinger has always worked at the interface of biophysics and cell biology, first using the latest advances in live-cell single-molecule microscopy and later in bottom-up synthetic biology to tackle questions in immunology and cell biology.

She is now applying her knowledge to reconstitute cytoskeletal processes and cellular signaling pathways. At the moment, her efforts are focused on pathways that are pivotal to the adaptive immune system. It is this immune system we are learning a lot about, now that we are being educated about how our immune system fights the corona virus.

Molecular reconstitution combined with quantitative imaging is providing a unique perspective on how cells read out and process signals. The way Kristina Ganzinger approaches this is to re-assemble these processes step-by-step.

In her group, they have recently optimized a method called continuous droplet interface crossing encapsulation that enables them to reliably make lipid vesicles with a defined content, for example a minimal cytoskeleton. In this method, vesicles are made by dripping droplets off a capillary and subsequently forcing their passage through a second oil-water interface using centrifugal force. With the means of the Pieter Langerhuizen Stipendium, she wants to further extend the powers of this method by designing a 3D printed nozzle that allows her group to mix the content of two or more capillaries at a programmable ratio, just prior to the formation of the vesicles.

The jury found this a very original approach, where a doable modification of existing apparatuses will make their research a step simpler. They will probably make it more complicated in other ways. And this will invariably make new research possible.

The jury would like to encourage Dr. Kristina Ganzinger to continue on her original path and hopes that this award will stimulate her approach to pursue her scientific goals.

The jury congratulates Dr. Ganzinger with the award and wishes her success with achieving her ambitious plans.

Prof. dr. J.F.J. (Johannes) van den Brand, hoogleraar subatomaire fysica Vrije Universiteit
Prof. dr. ir. T.H. (Tjerk) Oosterkamp, hoogleraar experimentele natuurkunde Universiteit Leiden

De jury vergaderde in verband met de Corona-maatregelen online op 26 maart 2020 onder leiding van KHMW-directeur Dr. W. Bijleveld. Tevens waren ter vergadering aanwezig Prof. dr. A.P. IJzerman, secretaris natuurwetenschappen KHMW en Drs. S. van Manen, secretaris (notulen).