TECHNISCHE UNIVERSITÄT DRESDEN

School of Science Faculty of Physics

DRESDNER PROMOTIONSPREIS PHYSIK 2022

Program:

- Opening: Dean of the Faculty of Physics, Prof. Dr. Carsten Timm
- Laudations: Chair of the Prize Committee, Prof. Dr. Roland Ketzmerick
- Laureate Lectures: Dr. Erjuan Guo and Dr. Marta Urbańska
- Reception (Recknagel-Bau, wing C, ground floor)

Time and Place:

Tuesday, January 31, 2023, 4:40 pm – hybrid event
The colloquium will be held in the lecture hall REC/C213 (Recknagel-Bau, Haeckelstraße 3, 01069 Dresden)
Online participation possible:
Zoom-Meeting: Meeting-ID: 631 3817 8900 / passcode: PK-WiSe22
https://tu-dresden.zoom.us/j/63138178900?pwd=RVVZM3N4azdmNmVJQ2RWUTZ0TkhXdz09

Lectures:

Dr. Erjuan Guo: Integrated complementary circuits based on organic permeable dual-base transistors

The lack of appropriate vertical-channel dual-gate organic thin-film transistors has limited the development of organic complementary circuits. In this project, organic vertical-channel permeable dual-base transistors are proposed and used to create integrated complementary inverters and ring oscillators. The vertical dual-base transistors enable switching voltage shift and gain enhancement. The inverters exhibit small switching time constants at 10 MHz, and the seven-stage complementary ring oscillators exhibit short signal propagation delays of 11 ns per stage at a supply voltage of 4 V.

Dr. Marta Urbańska: Single-cell mechanical phenotyping across timescales and cell state transitions

The importance of mechanical properties of cells in processes such as tissue development and cancer metastasis has become undeniable. Hence, there is a pressing need for establishing robust methods to measure and control cellular stiffness. In my thesis, I consolidated microfluidics-based methods for high-throughput single-cell mechanophenotyping, discovered changes in mechanical phenotype during cell (de-)differentiation along the neural lineage, and identified candidate genes that can be used to tune the mechanical properties of cells. These contributions push the frontiers of single-cell mechanical phenotyping and lay ground for controlling cell stiffness on demand to enable cellular functions or prevent pathologies.

Gefördert von:

WILHELM UND ELSE HERAEUS-STIFTUNG

Mitglied von:

DRESDEN concept
Exzellenz aus Wissenschaft und Kultur