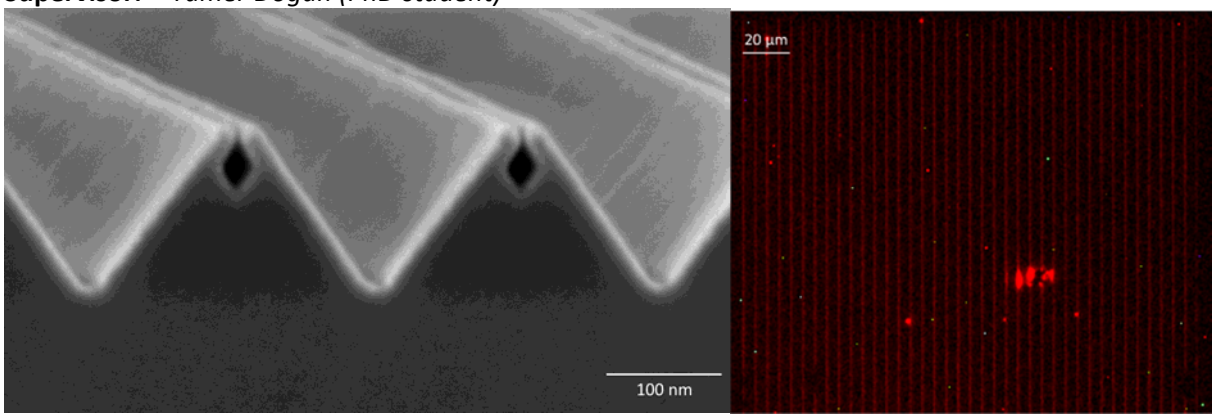
BSc/MSc project

NanoElectronics Group
www.nano-electronics.nl

Title: *1D Molecular Electronics*
Supervisor: *Tamer Dogan (PhD student)*



Goal and motivation

Organic semiconductors possess unique electronic and optical properties. And their charge transport characteristics are promoted when they are in nanowire formation. It is currently important to analyze their properties at decreased sizes (within the range of 10-20 nm) since these dimensions could give rise to unprecedented quantum phenomena. In addition, size dependent measurements could help us to understand reasons behind such increase. Here we take a solid route regarding size definition by producing nano-channels with dimensions of aforementioned range. By introducing number of organic materials and examining their electrical behaviour, we aim to unravel the physical relation to size.

The assignment

- *Fabrication of differently sized nanochannels using cleanroom equipment in the NanoLab such as photolithography, wet-bench technology etc.*
- *Characterization of channel devices by various tools such as scanning electron microscopy, atomic force microscopy etc.*
- *Experimenting with insertion of different organic semiconductors, and taking measurements at different temperatures and settings by utilizing several electronic equipments*
- *Investigating size dependent phenomena and magnetic field effect on transport properties*

Profile

The student should have background in nanotechnology, applied physics or advanced technology. It is highly recommended to students who would like to learn and understand research procedures from basic to advanced levels. You are also expected to be an enthusiastic member in our motivated team.

Graduating in NE

As a student in NE you are a full group member and expected to give an active contribution to ongoing research. You are involved in specific aspects of research (device fabrication, measurements and analysis) and your work is likely to be part of a scientific publication. Besides you are also encouraged to participate in the regular social activities.

Contact

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