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<https://www.ulb.ac.be/rech/inventaire/chercheurs/7/CH3847.html>

IMCN SEMINAR

***« Directional crystallization of Molecular
Semiconductors »***

Tuesday 27 February 2018 – 02:00 pm

LAVO51

Place Louis Pasteur, Louvain-La-Neuve

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ABSTRACT

Order is amongst the most important parameters that governs the physics of organic semiconductors (OSCs) Single crystals exhibits the highest charge carrier mobility of organic materials but their size, shape and alignment can hardly be controlled yet. Recently, we have demonstrated that polymorphism and alignment of organic single crystals of OSCs can be modified with the use of a thermal gradient that allows the separation of nucleation and growth. [1] We will report several examples of directional crystallization and discuss the physical parameters that allow the fabrication of single crystals. In parallel, we are engineering the crystal structure of OSCs. [2] We will also report on the latest progresses on the characterization of OSCs, notably substrate-induced phases [3].

[1] Cryst. Growth Des. **2011**, 11, 3663.

[2] Adv. Mater. **2015**, 27, 3066, Adv. Mater. **2016**, 28, 7106.

[3] Adv. Funct. Mater. **2016**, 26, 2233-2255

BIOGRAPHY

Yves GEERTS is chemist and full-professor at ULB. 144 publications, > 7300 citations (Scopus). New materials with unusual opto-electronic properties are designed, synthesized, processed into thin films, and characterized by the Geerts group. In the past, he has mostly worked in the field of discotic liquid crystals. More recently, he has redirected his scientific activities towards crystals. Three research lines are developed: i) the crystal engineering of organic semiconductors to increase charge carrier mobility, ii) the use of well-defined non-equilibrium thermodynamic conditions to control the thin film morphology and polymorphism, iii) the substrate-induced phases of molecular crystals. He has coordinated three European projects, i.e. FP5-DISCEL (10 partners 2,3 Mo €), FP6-NAIMO (23 partners, 23 Mo €), FP7-ONE-P (28 partners, 26 Mo €).



He has benefited of a mandate of Francqui Research Professor (4 years sabbatical period, 2011-2015, supported by the Francqui Foundation) to travel worldwide and to focus on research activities. He contributes also to the International Solvay Institutes, that are located in Brussels, by organizing colloquia, workshops, chairs, and public lectures devoted to today's major scientific challenges. The mission of the Solvay Institutes, created by E. Solvay, in 1912, is to support and develop curiosity-driven research in physics, chemistry and allied fields with the purpose of enlarging and deepening the understanding of natural phenomena. He has supervised 33 postdocs, 13 PhD and 30 master students. Eight of his former coworkers have now obtained a tenured academic or research position, in Belgium, France, Spain, Germany, and UK.

Websites: <https://www.ulb.ac.be/rech/inventaire/chercheurs/7/CH3847.html>
<http://www.ulb.ac.be/sciences/chimpoly/about-yves.html>