

# THE MONTHLY LIST

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## LIST AND THE SINGAPORE CENTRE FOR 3D PRINTING HAVE BEGUN A NEW PARTNERSHIP ON 3D COMPOSITE PRINTING

**A high-level Luxembourg-Singapore partnership marks yet another step towards the start of research activities and the implementation of 3D printing technology (additive manufacturing) on Luxembourg soil. LIST, with its expertise in the field of advanced and processed materials and SC3DP, world leader in additive manufacturing, will work together to develop a new generation of 3D printing technologies based on composite materials and multi-material hybrids. The collaboration would allow the emergence of new products, provide a competitive advantage for Luxembourg and represent a true asset for the transformation of the Luxembourgish and European industries.**

Photo: from left to right: Jean-Paul Schuler (CEO, Luxinnovation), Gaston Schmit (Premier Conseiller de gouvernement, Ministère de l'Enseignement Supérieur et de la Recherche), Chee Kay Chua (Directeur, SC3P), Gabriel Crean (CEO, Luxembourg Institute of Science and Technology) and Marc Schilz (Secrétaire Général, Fonds National de la Recherche)

The Luxembourg Institute of Science and Technology (LIST), in close collaboration with Luxinnovation and the National Research Fund (FNR), recently laid the foundations for a broad partnership with the Singapore Centre for 3D Printing (SC3DP) at Nanyang Technological University – NTU. On Tuesday 21 June 2016, less than three months after their first meeting on this topic, a common work session at the LIST premises in Belvaux allowed to prepare a common roadmap for a research and development partnership that will draw on their respective expertise in composite materials and 3D printing. This document thus underlines the determination of LIST to contribute significantly to the set-up of a national centre for additive manufacturing in Luxembourg.

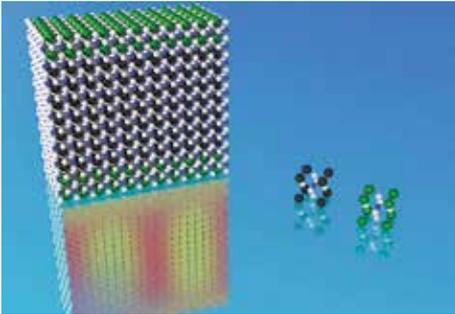
### **Technology in the making**

LIST, a research leader in composites including sustainable composite materials, and SC3DP, the Singapore research centre internationally acclaimed for its research into 3D printing, will very soon be joining forces. Behind this merging of cutting-edge expertise lies great ambition: exploring the 3D printing capabilities of composite polymer materials. Together, they will address the current challenges for this type of printing, ranging from engineering of innovative raw materials to multifunctionality of composite materials.

A technology of the future, 3D printing of composite polymer materials is still in its infancy yet shows great innovation potential in many economic sectors. The core businesses of the aerospace, marine and offshore sectors, the biomedical and electronic sectors and the building and construction and manufacturing industries are all affected by innovations resulting from mastery of this technology. The creation of new products and related services along with new markets and business models all provide opportunities that Luxembourg intends to invest in to further develop the competitiveness of the local and European industries.

The precise terms of the partnership are shortly to be defined and developed on the occasion of an upcoming Luxembourg visit on Singapore soil.

# OTHER HIGHLIGHTS



## International

### LIST RESULTS PUBLISHED IN NATURE

The results of a LIST project have recently been published in the world-leading scientific journal Nature. By means of numerical simulation and experimentation, the research team has discovered that the combination of ferroelectric and dielectric compounds makes it possible to create a new very reactive material, capable of releasing stored energy to amplify an applied electric voltage. This innovation is a big step towards the development of green electronics (computers, mobile phones, etc.) with reduced power consumption. The discovery was part of the PEARL "Co-Fermat" project, funded by the National Research Fund (FNR). As a next step, LIST will design materials that are suitable for industrial production. [Learn more on www.list.lu](http://www.list.lu)

## Industry

### ROQUETTE TEAMS UP WITH LIST

LIST has started a significant research collaboration with French multinational Roquette, specialised in the processing of plant-based raw materials. As one of the world's five leading starch manufacturing groups, Roquette processes corn, wheat, potatoes and peas and delivers material solutions specifically tailored to the pharma, nutrition, food and other selected industries. The group operates in over 100 countries, has a turnover of 3.3 billion euros and currently employs 8,000 people worldwide. The project with LIST aims at the formulation of a polymer resin from a bio-sourced molecule produced by Roquette. The project will further advance LIST's competencies in composite materials and represent a real competitive advantage by enlarging the available solutions for biobased composites synthesis. [Learn more on www.list.lu](http://www.list.lu)



## Europe

### BEST-OF-CLASS

The European CrossCult project co-ordinated by LIST has won the international call for proposals for the Horizon 2020 program (1<sup>st</sup> of 137 proposals). CrossCult aims to spur a change in the way European citizens appraise History. It will foster the re-interpretation of what citizens may have learnt in the light of cross-border interconnections among elements of cultural heritage, other citizens' viewpoints and physical venues. It seeks to increase retention, stimulate reflection and help citizens appreciate their common past and present in a more holistic manner. The aim of the project is to design a ground-breaking, user-friendly and cost-effective digital tool to be used by experience designers, museum experts and external stakeholders. [Learn more on www.crosscult.eu](http://www.crosscult.eu)

## People

### ATTRACTING HIGH-LEVEL RESEARCHERS

Prof. Dr Philippe Dubois has been awarded funding by the Luxembourg National Research Fund (FNR) within the framework of the PEARL programme to set up at LIST a research group in the domain of sustainable composite materials. The FNR will provide a total of €4 million over a time period of five years. The aim of the FNR's PEARL funding programme is to attract renowned foreign researchers to Luxembourg. [Contact: philippe.dubois@list.lu](mailto:philippe.dubois@list.lu)



### WHERE INNOVATIONS BEGINS.

Located at the heart of Belval's Research & Innovation Campus, LIST can ideally connect its over 500 specialists in materials, environment and IT, including its more than 70 PhD students, through a broad range of joint projects, programmes and partnerships with virtually all of Luxembourg's other major research players. At Belval, the University of Luxembourg, LIH, LISER, Technoport, Luxinnovation and the National Research Fund are all literally within arm's reach.

**LIST.LU**

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