

# FRANCE-HKUST INNOVATION HUB

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3<sup>rd</sup> & 4<sup>th</sup> of November 2018

## THE HUB'S FIRST ANNIVERSARY

### & A MEMORANDUM OF UNDERSTANDING

It has been almost a year since Pr. Tony Chan, President of HKUST, Pr. Tim Cheng, Dean of Engineering, and Eric Berti, Consul General of France in Hong Kong, unveiled the red curtains of the inaugurating plate of the France-HKUST Innovation Hub at the Institute for Advanced Studies. On **April 23<sup>rd</sup> 2018**, the Acting President of HKUST, **Pr. Wei Shyy**, and **Eric Berti** signed a formal Memorandum of Understanding to commemorate their common interest in promoting mutual cooperation in the areas of education, research and innovation.

*"We are here to advertise and federate, to build and manage cooperation frameworks. This France-HKUST Innovation Hub was born from our will to enlighten excellence from both our territories, and has found in HKUST a constructive echo. It is a window towards the community of French universities, French research centers, French technological companies. It is also opportunities for HKUST scholars to get in touch with French partners, academics and industrials"* said Eric Berti.

Though it has only been a year, the Hub has achieved a lot. We have organized several activities in different fields such as the conference on April 27<sup>th</sup> 2017 with the French company Vinci about an amazing Chernobyl sarcophagus, and the meeting on September 4<sup>th</sup> 2017 with 15 students from ESTP, the French civil engineering school.

The Hub provides opportunities for UST to meet French partners such as the **2017 So French so Innovative forum**, which is an initiative of French Foreign Trade Advisers, or the visit to the **French schooner TARA** at Central Pier 9 last March, which UST postgraduate students went to. These students had the opportunity to share their views with sailors and scientists about impacts of climate change in the oceans. We were also happy to join forces with the French Chamber of Commerce to organize the **job fair "Bonjour Talents"** at the Business School of HKUST in February. Similarly, on April 23<sup>rd</sup> 2018, the Hub organized a successful high-level meeting with French partners eager to collaborate with HKUST: Dr. Olivier Orfila, from the French Research Institutes on Transportations, City, Roads and Networks (IFSTTAR) and Stéphane Duguet, R&D director at Thales, as well as Fabrice Demichel, First Finance Institute.

We were also very pleased to see the collaboration between the UST School of Business and HEC Paris, resulting in UST's 3<sup>rd</sup> dual degree with a French institution (after Centrale-Supélec and ENAC), and we are similarly pleased with the agreement with the University Paris-Descartes for an exchange program between the Interdisciplinary Program Office of HKUST and the French university.

In October 2017, the French telecommunications company **Orange** gave HKUST students in the Innovation and Entrepreneurship program an insight into their innovation policy, kickstarting a promising collaboration between the Hub and Orange. The Hub and Orange were both keen to organize an **innovation contest** centered around **Corporate Social Responsibility**, a hot topic in both China and France, and this contest, **Contest 4CSRtech**, will occur on November 3<sup>rd</sup> and 4<sup>th</sup> at HKUST! Teams of students will develop solutions to deal with social labor, health and safety, environment management, business ethics, and other relevant issues. **This partnership between HKUST, Orange and the consulate general is definitely a 2018 highlight for the Hub.**

Last but not least, we have set up this quarterly newsletter, which is currently distributed to over 600 recipients, giving to the Innovation Hub visibility and credibility.

We will continue to support these initiatives in the future for the best of HKUST, Hong Kong and France.

F. Bretar & K. Yeung



Mr Eric Berti & Prof. Wei Shyy



Stéphane Duguet



Dr Olivier Orfila



# FRANCE - HKUST INNOVATION HUB



FIRST FINANCE Institute

## WHY EXECUTIVE EDUCATION IS BETTER ONLINE

Can Online Executive Education can be as efficient as going to class? I argued yes. My certainty is based on over three years of experience running the FIRST FINANCE Institute, an online education leader for finance and business professionals.

But first, what do we mean by 'efficient' when we're talking about education and acquiring knowledge? This is not an easy term to define since everyone is pursuing different goals. So, let us focus on a generic reason why **most executives go back to class: acquiring and improving methodologies in your profession and field of work.** We learn from experience, but there comes a point where everyone needs to step back and conceptualize what they learned in practice. The world is also rapidly changing, with new topics and processes constantly emerging, and we need to have an understanding how these will impact our environment and processes through education.

Here, we must consider the very nature of financial analysis and evaluation: when we conduct financial analysis, we can't merely apply a set of textbook rules and ratios. Evaluating the financial position of a business is about using complex frameworks and rigorous questioning. **It is all about methodology, not hard rules.** We go back to class to acquire and practice and test these methodologies, so we no longer need to rely on outdated rules. **So why is online education being as good, if not better than the classroom when it comes to learning and applying methodologies?**

The answer comes down to a few factors: **time, pro-activeness and the learners' community.** It is much easier to discuss, apply and test concepts in an online environment compared to a traditional classroom, where there is less room for interaction. Online channels also allow educators to deliver content that the participant can consume whenever and wherever. That content is played with and challenged by peers from diverse backgrounds through a series of activities that promote engagement. Acquiring, testing and applying methodologies are all happening right there, online.

This seems somewhat counter-intuitive as online learning has inherited an unfortunate reputation: of being passive and boring. However, online education done right is exactly the opposite: it is engaging, challenging and fun.

*Fabrice Demichel*



*Fabrice Demichel, COO at the FIRST FINANCE Institute and one of the French speakers at the signature of the MoU on 23<sup>rd</sup> April 2018, at HKUST.*



## PORTRAIT

PROF.

BEN ZHONG TANG

PROF.

HUI-MIN LI



Prof. **Ben Zhong TANG** is a **Chair Professor of Chemistry** and Chair Professor of Chemical and Biological Engineering at the Hong Kong University of Science and Technology (**HKUST**). He is spearheading research on **aggregation-induced emission (AIE)**, one of the hottest topics in the areas of **Chemistry and Materials Science** now.

His project in collaboration with **Prof. Min-Hui LI**, Research Director at the **CNRS of the Institut de Recherche de Chimie Paris** is on Polymer Nanostructures with Aggregation-Induced Emission Properties for **Bioimaging and Theranostics**.

## WHO ARE YOU, PROF. BEN ZHONG TANG?

I was born in Qianjiang and I did my Bachelor's degree in the South China University of Technology. I started my career at **Kyoto University** (Japan), where I did my PhD and I then conducted postdoctoral research at University of Toronto (Canada), where I also worked as a senior scientist between 1989 and 1994 before moving to HKUST in 1994. Since 2009, I have been a member of the **Chinese Academy of Sciences**, and I started to work as a polymer chemist with a particular interest in the synthesis and development of these molecules. However, since the beginning of this century, we have observed a new phenomenon called **Aggregation-Induced Emission (AIE)**, which is not directly about polymers but more about the photophysics of materials which can build with small molecules. So, I was exclusively working on polymers before, but have since shifted part of my research efforts to small molecules.

## HOW DID THE COLLABORATION WITH MIN-HUI LI (CNRS) START?

I met Prof. Min-Hui LI for the first time at the **Sino-French Symposium** (a periodical event hosted by both countries) on October 4<sup>th</sup> 2010 in Paris where I was presenting my research. We've often met since then, as we work in the same field and go to the same conferences. Before we applied for this Hong Kong/France research grant, we had already started to talk about a research collaboration because she often went back to China and stopped by Hong Kong as she had an adjunct position in a **university in Beijing**. When I applied to the **ANR/RGC Funding Scheme**, I didn't really expect to get the grant because of the high selection criteria, so it was a pleasant surprise. I also receive additional funding from the **Innovation and Technology Fund (ITF)**, which really helps our project.

## WHO ARE YOU, PROF. MIN-HUI LI?

I was born in the Jiangxi province in China and did my Bachelor and Master's degrees at Tsinghua University. I performed my PhD at **CEA Saclay** between 1989 and 1993, and my post-doc at Institut Français du Pétrole. In 1994, I joined CNRS, where I worked at **Centre de Recherche Paul Pascal in Bordeaux** from 1994 to 1997 and **Institut Curie in Paris** from 1997 to 2014, and since 2015, I have been at **Institut de Recherche de Chimie Paris** (Chimie ParisTech-PSL University-CNRS). My research interest has always been in the field of soft matter (founded by the French Physicist **Pierre-Gilles de Gennes, Nobel Prize 1991**) including liquid crystals, polymers and colloids. I started to work as a polymer chemist and liquid crystal chemist and I have always been keen to collaborate with physicists and biologists in **interdisciplinary environments**. I am currently working on smart soft materials such as **polymer vesicles**, artificial muscles by **liquid crystal polymers**, and liquid crystal nanostructures for ion transport.





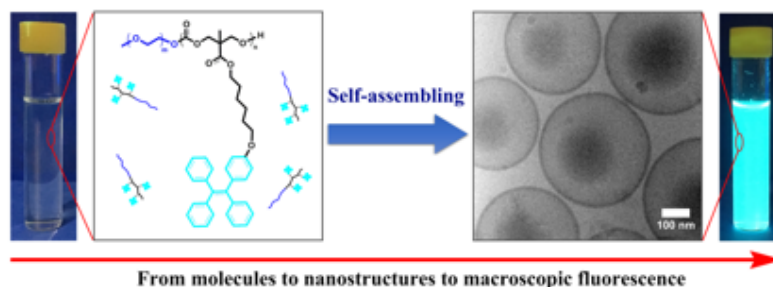
## WHAT ARE YOU WORKING ON?

Our project is on **Polymer Nanostructures with Aggregation-Induced Emission Properties for Bioimaging and Theranostics**. Polymer nanostructure-based bioimaging systems possess many advantages over traditional ones in terms of sensitivity, signal stability, multiplexing capability and facile surface functionalization for targeting. Polymer nanostructure-based **drug delivery systems** (DDS) show reduced cytotoxicity and better protection of active molecules and provide drug release control in time and space. Polymersomes (**polymer vehicles**) are of particular interest as they show high stability and unique encapsulation ability for both hydrophilic and hydrophobic molecules, and their membrane properties can be finely adjusted using a variety of monomers to achieve stimuli-responsive opening. However, up until now, few bioimaging nanoparticles and nano-DDS based on polymers have reached a commercial level. Several challenges remain: how to image cells/tissues efficiently and track the distribution of drugs, how to enhance the imaging and treatment efficacy, how to achieve controlled release of drugs, etc. **Fluorescent polymer nanoparticles** studied for bioimaging generally contain conventional organic dyes which suffer from aggregation-caused quenching (ACQ). Recently, luminogens with aggregation-induced emission (AIE) characteristics have emerged as a new class of fluorescent materials for organelles imaging and drug delivery monitoring. The combination of AIE luminogens (AIEgens) and polymer nanostructures, especially polymersomes, will allow for **innovative approaches to cell/tissue imaging** and to in vivo study of drug distribution. However, there are only a few systems reported to date that combine AIE properties with polymer nanostructures self-assembled in a well-controlled manner. Studies on AIE polymersomes are currently scarce.

My French partner in this **international collaborative project**, Prof. Min-Hui LI, is a specialist in polymer synthesis, polymer self-assembling and the design of stimuli-responsive polymersomes sensitive to light, temperature and reduction agents. In particular, she is working on the self-assembling process, a topic studied at an early stage by Jean-Marie Lehn, who was awarded Nobel Prize in chemistry in 1987. Thanks to the development of new techniques, we are able to **monitor the whole self-assembling process** with AIEgens.

## WHAT ARE THE BENEFITS YOUR RESEARCH CAN BRING TO SOCIETY?

The outcome of our research is not limited to the monitoring of the self-assembly process. It covers a far wider range, and we hope to one day find the AIE technology in optoelectronic industry **to make a screen or even a "wall of light"**, a chemical sensor for testing **water or food quality** with an ultra-high sensitivity at a ppb (parts-per-billion) level. Our main vision is to make our society safer, especially by enhancing quality of life by **improving bioimaging and theranostic for cancer**. So far, we are still at the beginning of this project and I hope that we will one day find a partner to realize **the industrialization and commercialization** towards our vision.



*The polymersome membrane affords a nanosize bright fluorescent system with self-assembly induced emission in the thickness scale of 10-15 nm. These polymersomes can be potentially used as a stable fluorescent tool to monitor the transportation and distribution of drugs and bioconjugates in living cells. (Min-Hui Li et al. ACS Nano 2018, 12, 4025-4035)*

# FRANCE - HKUST INNOVATION HUB



## HKUST & L'ÉCOLE POLYTECHNIQUE SIGNED A NON-DEGREE MOBILITY AGREEMENT

L'École Polytechnique and the Hong Kong University of Science and Technology signed a non-degree mobility agreement on the 6<sup>th</sup> of June during President of l'X, Jacques Biot, visit to Hong Kong.

This cooperation agreement between the **two institutions promotes student exchange at an undergraduate level** between the institutions and provides a framework for students to complete a semester or year at the partner university with valid credits towards their degrees.



Jacques Biot, President of l'Ecole Polytechnique & Wei Shyy, Executive Vice-President & Provost of HKUST

L'École Polytechnique has developed cooperation with the universities of Hong Kong, and in particular with HKUST, as the university has opened new academic programs in English, at both Bachelor's and Master's levels. **Now, Bachelor program students of l'X will be able to exchange for an academic semester delivered in English at HKUST, and the HKUST students will be able to study at l'X, in Bachelor's or Master's programs delivered in English or even in the Ingénieur Polytechnicien program if they wish to study in French.**

During his visit, Jacques Biot met with Professor Wei Shyy, Acting President of

HKUST and current Executive Vice President and Provost. This meeting **sparked discussion into opportunities for new avenues of collaboration between the institutions** such as research.

### A BRIEF OVERVIEW OF L'ÉCOLE POLYTECHNIQUE

L'École Polytechnique is a leading French institute that combines top-level research, stellar academics, and cutting-edge innovation in science and technology. Its curriculum promotes a culture of excellence with a strong emphasis on science while still anchored in humanist traditions. The school produces socially responsible professionals who excel in leading complex and innovative projects that address current and future challenges our society face.

**Initially called École Centrale des Travaux Publics (Central School of Public Works), l'École Polytechnique was founded in 1794 as a response to the startling lack of engineers and high-level officials in France.** L'École Polytechnique's 1<sup>st</sup> mission was to provide its students with a well-rounded scientific education with a strong emphasis in mathematics, physics, and chemistry, and the institution has since seen some of the greatest scientists in their field emerge, such as Augustin Cauchy, Benoît Mandelbrot, Henri Becquerel (Nobel Prize in Physics 1903) or Jean Tirole (Nobel Memorial Prize in Economic Sciences 2014).

Nowadays, l'École Polytechnique encourages a spirit of innovation and entrepreneurship among students on the Engineering Program, those studying for Master's degrees and PhDs and researchers in their Research Center laboratories. In particular, La Fibre Entrepreneur is new center entirely dedicated to entrepreneurship and innovation at l'École Polytechnique and the first of its kind. This 2,500 m<sup>2</sup> space provides a unique spot for entrepreneurship, allowing for creation, experimentation and prototyping, education, incubation, and dialogue with investors. With a design based on the most modern accelerators in the world, this center works closely with partner incubators (Télécom ParisTech, HEC...) and with Paris-Saclay institutions in promoting technology and research for industry.



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# FRANCE-HKUST INNOVATION HUB

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## INNOVATION CONTEST 4CSRTECH

BY ORANGE &

THE INNOVATION HUB!

3<sup>RD</sup> & 4<sup>TH</sup> OF NOVEMBER 2018



Save the date and start your creative engines! Orange and the Innovation Hub are organizing an innovation contest at HKUST to inspire and identify innovative solutions to challenges in Corporate Social Responsibility.

Click on the link or scan the QR code at the end of the article to register



Orange is the largest French mobile operator and internet service provider. They are a global company with many partnerships across companies and subsidiaries.

As a responsible company in a digital landscape, Orange is committed to maintaining excellent Corporate Social Responsibility practices. Their Essentials2020 strategy is in line with the United Nations Sustainable Development Goals (SDGs) and many of these SDGs are already incorporated into Orange's vision. In addition to a structured and proactive CSR approach, Orange also strongly believes that digital innovation generates shared value and progress for both the company, individuals, and society as a whole.

There are three main drivers behind Orange's CSR approach:

### CREATING TRUST IN A DIGITAL WORLD

Digital technologies are impacting and transforming our society and our lives every day, but with the benefits these technologies bring come risks, anxieties and uncertainties. At Orange, we want everyone to embrace digital changes with confidence. Our objective is to help our employees, customers and partners make the most of a positive digital world.

### CONTRIBUTING TO ECONOMIC AND SOCIAL DEVELOPMENT

At the centre of a vast industrial and economic ecosystem, Orange is privileged to have access to millions of customers and to possess a strong market position in Europe, Africa and the Middle East. With its unique position and privilege, Orange is helping digital technology become a catalyst for socio-economic development in these places.

### PROMOTING ENERGY AND ECOLOGICAL TRANSITION

Digital technology is now integrated into many aspects of our lives and developing digital uses is a constantly relevant challenge for Orange. Moreover, in the radical transformation of the industrial world, digital technology also provides the opportunity for more innovative and sustainable solutions to emerge and promote energy and ecological transition. Orange has set ambitious goals and is taking concrete actions across all of their business units to reduce environmental impact.

Some key figures about Orange's CSR efforts:

- Protecting human rights: 366 CSR audits performed with 817,000 participating employees at our suppliers and their subcontractors in 27 countries, in partnership with other operators (Joint Audit Cooperation).
- Encouraging digital inclusion: 20,000 children aged 9 to 12 benefit from our #SuperCoders workshops across 17 countries in Europe and Africa.
- Collaborating for a better society: 73 Solidarity FabLabs in 11 countries support disadvantaged youngsters without access to education.
- Limiting the impact of our activities: 22.2% mobile phone recycling rate in 2017 in France reported by our customers, reaching 1 million devices for the first time.
- Collaborating for innovation: Innovating with all the players in our ecosystem to capture promising new growth markets and to continue to enrich our customers' experiences. For instance, Orange Fab accelerators have been supporting start-ups across 15 countries and 4 continents.



CSR is a growing field that requires greater attention and more tools to be managed properly, and this is the reason Orange is willing to involve the general public by communicating and building new means for improving working life.

### ENROLL AT

<https://www.eventbank.cn/event/16765/>