*The **CREA**tion of the Department of Physical Chemistry of Biological Sys**TE**ms [CREATE]*

666295 — CREATE — H2020-WIDESPREAD-2014-2015/H2020-WIDESPREAD-2014-2

Visit Sarai Kemp report

[WP5]

Level of dissemination: PUBLIC

Warsaw, October 2016

This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 666295

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CREATE lectures ”Innovation source”

The first open lecture under a series of “*Innovation source*” was held on the 26th Oct., 2016 at the Institute of Physical Chemistry PAS (IPC). The purpose of the above series of lectures is to update scientists’ knowledge of current technological trends and innovation in chemistry-related sectors, as well as establishment of relations with business.

At the invitation of the Project Coordinator, **Sarai Kemp, CEO of Israeli company – *Trendlines*, offering commercialization services at the field of life science aimed at establishment of start-up companies**, paid a visit at IPC. Main aim of the visit was delivering a lecture “***The Israeli start-ups’ eco-system* - How to commercialize technologies from the Academia**”. The whole society of IPC, including all the IPC researchers, and doctoral students was invited.

Sarai Kemp began her presentation by pointing out three major reasons for start-ups failure, namely:

- running out of money
- no market need
- not the right team.

Among the abovementioned reasons, the “No Market Need” has the biggest share. Within two years after 1st financing round most of all start-ups fail. To overcome this stage the Israeli government established a unique program. Under this programme, 22 incubators were founded. The incubators are supported and licensed by the government but they are privately owned and operated. The incubators provide a favourable environment for company development. Companies

can interact with other similar start-ups and focus on their technological development, while the incubator takes care of the rest: accounting, administration, mentoring, guidance, and networking.

Sarai gave a brief start-ups statistics. She showed the number of start-ups in Israel and Poland in relation with the number of residents and the money spent on R&D.

Referring to the Israeli start-up ecosystem, Sarai listed the greatest challenges (i.e. identify the opportunity, start thinking business, initial funding, market penetration) which should be address in order to successfully commercialize research results.

The interactive way of conducting the lecture allowed for an active discussion.

BUSINESS MEETINGS AND LAB VISITS

After the seminar Sarai Kemp visited several laboratories and research groups of the Institute, as well as two spin-off operating on the premises of IPC. These meetings enabled individual researchers to consult problems they face at various stages of commercialization of their research results.

Marcin Izydorzak Curiosity Diagnostics, President *(on the left)* ***and Sarai Kemp*** *(on the right)*

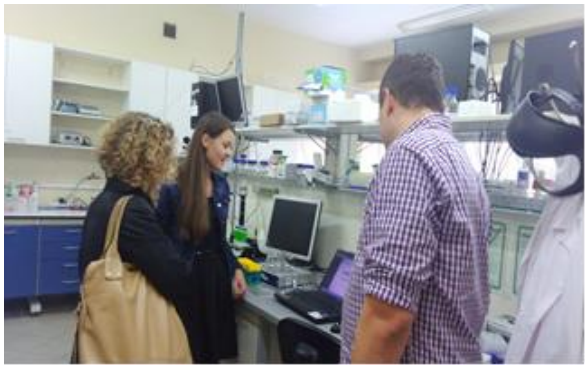
Sarai Kemp visited two innovative companies at IPC:

- **Scope Fluidics** - researching and designing microfluidic devices for medicine and biotechnology;
- **Curiosity Diagnostics** - implementing innovative techniques of molecular diagnostics.

Marcin Izydorzak and Piotr Garstecki, CEOs of the abovementioned companies gave detailed information on both companies, mutual business relationships and ongoing projects. They also gave an overview of presented a very modern laboratory, in which prototypes of chips for blood analysis are created. They also discussed possibility of wider application of this technology.

After that, Sarai Kemp met with representatives of the five research groups at IPC :

- the Microfluidics and Complex Fluids Group
- the Physical Optics and Biophotonics Group (of the ERA Chair holder)
- the Laser Centre
- the Fuel Cells Group
- the Soft Condensed Matter Group.



Prof. Piotr Garstecki, *Head of Microfluidics and Complex Fluids Group, Curiosity Diagnostics, President*

Prof. Garstecki was a Postdoctoral Research Fellow in the group of Prof. George Whitesides at Harvard University. He is co-founder of Scope Fluids and Curiosity Diagnostics.

Prof. Garstecki disscussed his current scientific research and indicated correlation between Scope Fluidics and his Department.

Prof. Maciej Wojtkowski, *ERA Chair holder, Head of Physical Optics and Biophotonics Group*

Prof. Maciej Wojtkowski is a physicist specializing in optics applications for biology and medicine. He constructed the first Fourier Domain Optical Coherence Tomography instrument for in vivo retinal imaging. He also contributed to development and construction of three clinical prototype high speed and high resolution OCT instruments which are in use in ophthalmology clinics: in Collegium Medicum in Bydgoszcz, New England Eye Center in Boston, and UPMC Pittsburgh.

Prof. Wojtkowski presented his plans of building a potential of the new Department of Physical Chemistry of Biological Systems. He talked about his current and planned research projects. He presented his team and presented new laboratory, which is built under the project CREATE.

Dr. Yuriy Stepanenko, *Member of the Laser Centre*

Ph.D. Yuriy Stepanenko works as an Adjunct in Photochemistry and Spectroscopy Department. His research interests especially include development of femtosecond oscillators.

Dr. Yuriy Stepanenko showed round a laser laboratory. He described briefly methods and techniques used in femtosecond spectroscopy. Dr. Stepanienko has recently established a spin-off company. For this reason he asked Sarai some practical questions related to the conduct of the spin-off company.

Dr. Andrzej Borodziński, *Group of Fuel Cells*

Dr. Andrzej Borodziński has a wide experience in selective acetylene - hydrogenation process. Since 1974, he has conducted basic research and cooperated with industry resulting in patents and their application in Polish industry. Dr. Andrzej Borodziński and his team presented his current research. Sarai was surprised that such a small laboratory created so interesting solutions that are used in the automotive industry. They also consulted the problems that appear at different stages of the commercialization of inventions.

Dr. Krzysztof Sozański, *Member of the Soft Condensed Matter Group*

Dr. Krzysztof Sozański is a post-doc affiliated to the Soft Condensed Matter Group since the 2nd year of his BSc studies. He presented the fluorescence correlation spectroscopy and mammalian cell culture laboratories of the Soft Condensed Matter Group. Sarai Kemp was introduced to the techniques and research topics currently realized in the group, especially the length-dependent viscosity studies with application to living cells. The visit evolved into a discussion on how basic understanding of motion in living systems at the molecular scale could be applied in both research methodologies as well as clinical treatments.

ANALYSIS AND RECOMMENDATIONS

Recommendations of the ERA Chair holder, Prof. Maciej Wojtkowski, for IPC arising from the discussion inspired by the visit of Sarai Kemp:

1. Even basic research should be in line with world trend to ensure their applicability: Research confronted directly with the global scientific work will give a realistic perspective of application. This concerns mainly the areas such as life sciences, engineering sciences, chemistry and physics. In other words, it is enough to adapt to world trends and the results of basic research will be usable in practice.
2. Application potential depends on the organization of research - in particular the organization chart of the research group. Therefore it is recommended to:
    - strengthen integration both at the level of a group and at the entire institution. All types of works – i.e. fundamental research, applied research and implementation works – can be simultaneously carried out at the level of the research group and at the level of the whole institute.
    - create groups dedicated to the implementation activities, or conducting development works to balance the number of research of a purely fundamental nature
    - constantly evaluate of research groups
    - maintain an appropriate number of staff with extensive experience
    - acquire and/or maintain Team leaders with a very good sense of the current market needs. They have to go beyond their traditional role of scientists and advisors, understand the needs of the industry (aimed at profit), and optimize the process of technology development and sale of new technologies.
    - open to cooperation with specialists with unique skills who do not have purely scientific ambitions
    - allow for the research groups people who do not to duplicate a one-dimensional academic career model adopted in Poland
    - allow for recruitment of recruit highly qualified specialists at a decent level earnings.

ANNEX 1.

Full agenda of the Sarai Kemp visiting

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CREATE lectures "Innovation source"

Institute of Physical Chemistry of the Polish Academy of Sciences

26th October, 2016

Agenda

9.30-11.00 **business meetings and lab visits**

9.30-10.00 Marcin Izydorzak
Curiosity Diagnostics, President; Scope Fluidics, CEO

10.00-10.30 Prof. Piotr Garstecki
Head of Microfluidics and Complex Fluids Group

10.30-11.00 Prof. Maciej Wojtkowski
ERA Chair holder, Head of Physical Optics and Biophotonics Group

11.30-13.00 **Sarai Kemp**

„Israeli start-ups eco-system:
How to commercialize technologies from Academia?"

13.00-14.00 **Lunch**

14.00-15.00 **business meetings and lab visits**

14.00-14.20 Ph.D. Yuriy Stepanenko – Laser Centre

14.20-14.40 Ph.D. Andrzej Borodziński – Fuel Cells

14.40-15.00 Ph.D. Krzysztof Sozański - FCS

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