Luxemburger Wort

University of Luxembourg

Expat professor gets €2m grant for liquid crystal research

Professor Jan Lagerwall of University of Luxembourg has just been awarded a two-million-euro grant for research within the field liquid crystals.
Photo: University of Luxembourg
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Swedish professor at the University of Luxembourg Jan Lagerwall has just received a prestigious two million euro grant for his research into liquid crystals, telling wort.lu/en: "It's fantastic! It gives you another level of possibilities both in terms of staff and equipment, and in working long-term."

According to a university press statement, the European Research Council's "Consolidator Grant" is one of the most sought-after research grants in Europe, which Lagerwall received to enable further research into his area of expertise, liquid crystals.

"It's about overcoming the focus on displays, liquid crystals can do much more!" he explained.

Focus on liquid crystals

Liquid crystals are commonly related with LCD displays in laptops, iPads, smartphones and so on, but Lagerwall explains the material could have a much wider range of applications.

"What is special with liquid crystal molecules is that they have a fluid phase, but are structured like a crystal, that's why they are called liquid crystals."

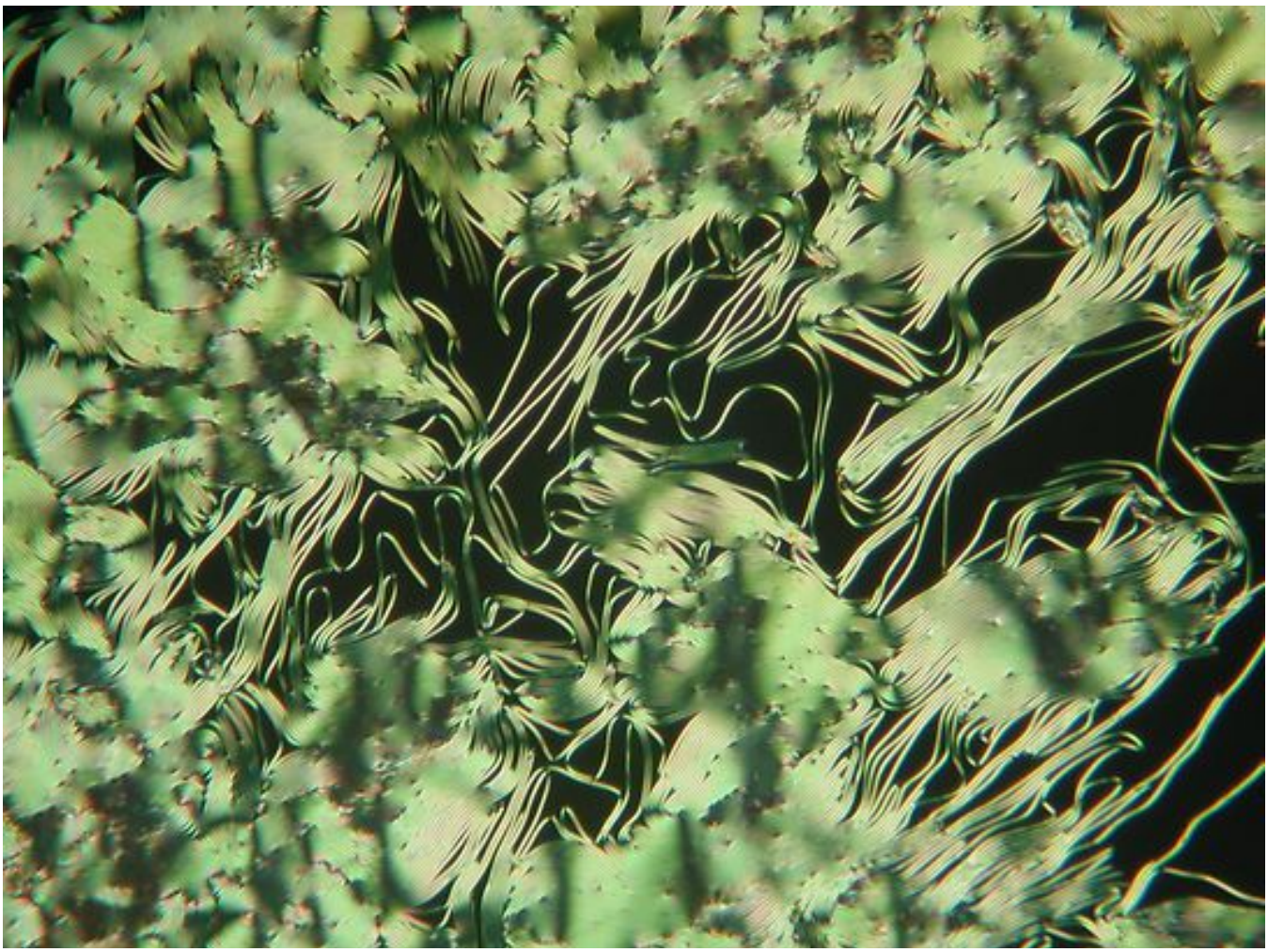
The crystals are very responsive and when exposed to electric currents, temperature changes, or gas molecules, they can for example change colour, but also physical shape.

From monitor to muscle

Professor Lagerwall's research will among other things look further into the use of liquid crystals for the creation of artificial muscles, a field of science having existed for some 20 years.

"My focus is on a new microfluidics-based technique with which different liquids interacting can create all new shapes. So far research has only created flat films, but we are looking at tubes and spherical shells that actuate in completely new ways."

An application field of this research is that of soft robotics, where Lagerwall aims to create skin-like material which can change stickiness so that, for example, a robot hand that by physical force could risk breaking an object could smoothly grip hold of it.



Liquid crystals
Photo: Jan Lagerwall/University of Luxembourg
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A young research nation

Having spent just over a year in the Grand Duchy, Jan Lagerwall recognises it as a "very exciting and very young" research nation and this has its ups and downs.

"There can be a lack of structure and routines," he explained, further describing the most frustrating experience in getting visas for foreign researchers.

"My latest postgraduate came from the top US Cornell University, and there was so much fuss that she lost a semester," he said, requesting a more "dynamic and communicative" Luxembourg.

"Clearer communication would have made much frustration and problems avoidable."

However, a young research nation also has its advantages.

"Much is possible and there's generally a very constructive and conscious attitude striving towards scientific progress," he told wort.lu/en.

Liquid crystals are the (microscopic) focus of Professor Jan Lagerwall who has been awarded the European Research Council's "Consolidator Grant" of 2 million euros.
Photo: Jan Lagerwall/University of Luxembourg

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About Jan Lagerwall

Lives in: Luxembourg City with his family

Speaks: Swedish, English, German, and French

Current position: Professor at the Physics and Materials Science Unit, University of Luxembourg, since February 2014

Qualifications (selection)**:**

- Associate professor, Seoul National University, South Korea, 2013-2014
- Assistant professor, Seoul National University, South Korea, 2010-2013
- Junior research group leader at Martin Luther University, Germany, 2007-2010
- Research at University of Stuttgart, Germany, 2003-2007
- Research at Technical University Berlin, 2003
- Research at University of Colorado, USA, 2002
- Ph.D. in Materials science, Chalmers University, Sweden, 2002
- M.Sc. in Engineering physics, Chalmers University, Sweden, 1997

By Daniel Isaksson