Large EU-grant for new approach to nanoscience

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Together with research groups in the UK, Italy and France the Department of Chemistry and Bioscience at Chalmers University of Technology in Goteborg, Sweden, has received positive evaluation from the European Union on a proposal of approximately 2.5 million Euros for a new approach to basic research in physical and organic chemistry. The grant is for three years and about half the sum is earmarked for Chalmers, which will give the department of Chemistry and Bioscience possibilities to start an exciting new project on biophysics and nanotechnology. This will lead to the recruitment of several new researchers, mostly PhD students. The project is planned to start in the beginning of 2005.

The French research team is led by Jean-Marie Lehn, Nobel Prize laureate in 1987 for his research on supramolecular chemistry. At Chalmers the research will be conducted by the research groups of Bengt Nordén, Bo Albinsson and Owe Orwar at the Division of Physical Chemistry. In the UK, the research group of Tom Brown at the University of Southampton is involved and the work in Italy will be performed by Piero Baglioni's research group in Florence.

The research will aim at producing functionalised, addressable networks on a nanometer scale, networks that in the future might be used in molecular electronics and diagnostic sensors. Today nanomaterial is built from a macro to a micro scale. In opposite to this, the new approach will be to start from synthetic DNA-molecules and build the structure from them.

Professor Bo Albinsson describes the work as a control on the molecules own scale. The novelty is the building of irregular, addressable networks on a nanoscale.

Albinsson says: "Many other research teams construct regular networks on a nanometer scale, something that is not too difficult with today's knowledge. But if you want to direct e.g. electrons to chosen sites the networks need to be irregular. The special thing with this is that every point in the network has its own function. The various parts of the DNA-molecule have their own messages, and it is this property of the molecule that makes it so interesting. We will use short DNA-strands and build networks that we can give special functions, e.g. attach different enzymes or chemical sensors to them."