

# Center for Applied Nanotechnology

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## CANdots Broadens Fluorescent Nanoparticles Portfolio Launch at Nanotech Northern Europe in Copenhagen



CAN GmbH is about to launch a new product group: CANdots. Presented for the first time at the “Nanotech Northern Europe” in Copenhagen (September 23 – 25) will be CANdot Series A: fluorescent nanoparticles covering the visible wavelength range from 480 to 620 nm. Soluble in nonpolar organic solvents like hexane, chloroform or toluene these particles have a narrow size distribution and are therefore characterized by narrow fluorescence bands and high photostability.

An innovative, patent-protected production process allows production even of larger amounts of nanoparticles at much lower costs than before. Another advantage over previous production processes is the very good reproducibility of particle properties. “Using statistical methods it has already been shown that nanoparticles produced by this process have properties that are many times more reproducible than established particles on the market,” explained CAN Project Manager Jan Niehaus. “For example, a significance of under 0.1 % was determined for the position and the FWHM (full width half maximum) of the emission peak, whereas the best significance obtained for known processes was 5 %.”

Research facilities as well as product development will profit from this never before achieved reproducibility. “Different results for one and the same product due to varying conditions in batch production may soon become a thing of the past,” said Prof. Horst Weller, Chief Scientific Officer of CAN GmbH. “Reliable development of sophisticated products that can fully utilize the unique potential of nanoparticles will only become possible when nanoparticles with identical

properties can be produced.” Others will follow the Series A to be launched at the European trade fair, allowing broader use especially in the field of medical research and rounding off CAN’s portfolio of fluorescent particles.

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## BMBF Project on Prostate Cancer Detection Approved

The BMBF project PROCEED (“Translating Molecular Profiles into Enhanced Diagnosis of Clinically Significant Prostate Cancer”) with CAN GmbH as a participant has received the go ahead. The project headed by the DKFZ Heidelberg is dedicated to early detection of prostate cancer. The goal is earlier and more targeted treatment, leading to a better chance of cure. Current methods of prostate cancer detection have only a low sensitivity and specificity. Therefore developing new molecular markers with improved properties is of utmost importance. One strategy is to use fluorescent nanoparticles coupled to suitable antibodies. These markers will be developed by CAN GmbH and the Physics Department of the University of Hamburg. In collaboration with the University Medical Center Eppendorf and the Martini-Klinik these functionalized nanoparticles will be tested on tissue samples and compared with conventional markers. The best markers will then be used in situ for prostate tumor detection in order to be able to demonstrate the improved properties of these nanotechnology-based markers. “Our part is found at the interface between technology development and clinical application,” said Dr. Frank Schröder-Oeynhausen, Chief Operating Officer of CAN GmbH. “Successful completion of this project will lead to a significant improvement in tumor tissue detection during a prostatectomy and therefore to a better chance of cure for the patient.” The project will run for five years. Development of the new markers should already be completed in the first three years to allow enough time until the end of the project to do all the testing required for these systems. CAN GmbH has received a 300,000 Euro grant for this project.

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## Trade Fair Tour from Copenhagen to Mannheim

In the fall, CAN GmbH will be at leading industry fairs in Germany and abroad with a stand and company presentation:

- **“Nanotech Northern Europe”** (23 – 25 September in Copenhagen), Europe’s largest annual conference and exhibition for the nanotech industry will be devoted to three main topics: health (nanobiotechnology and nanomedicine), energy (nanomaterials for regenerative energies) and



nutrition (food industry, water). This year the *Bio Tech Forum* partnering event and the *Scanlab 2008* exhibition will be held parallel to the conference exhibition. CAN GmbH will be present at Stand CH-W39.

- As a business fair, “**NanoSolutions**” (11 – 13 November in Frankfurt) will present the latest developments, integration methods and finished products in the field of nanotechnology. Expected are around 150 exhibitors and 4,500 visitors. The fair is cooperating with the *Nano-Equity Forum*, the 5th *Nanotechnology Forum Hessen* and *NanoSolutions Talks*. (Stand B15)
- After the very good results last year in Hamburg, CAN GmbH will be at the (November 17 – 19 in Mannheim) again this year. This is the largest European partnering conference for the biotech industry. Making **BIO-Europe** so attractive is primarily the pre-scheduled one-to-one meetings with established biotech and pharmaceutical companies. The unique partnering software of the EBD Group allows participants to schedule in advance meetings to lay the groundwork for successful collaborations.



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## “Researching Research!“ to Visit CAN



“Custom-made surfaces: from nanoparticle to functional layer” – On the 23rd of September “Researching Research!”, the innovation tour of the Chamber of Commerce of the metropolitan Hamburg area, will be at CAN GmbH. The Hamburg Chamber of Commerce invites those interested to come to Grindelallee 117 between 4 and 7 p.m. “It is a special honor for our team to be able to host ‘Researching Research!’ and present our newest developments to an interested group of people,” said Frank Schröder-Oeynhaus, who is excited about CAN’s inclusion in the innovation tour. “Nanotechnology offers innovative solution strategies for business and industry particularly in the area of surface processing.” “Researching Research” is a door opener to interesting research and development facilities that work on exciting new technologies or innovative types of knowledge transfer. “As a public private partnership, CAN GmbH combines basic research with industrial applications,” added Schröder-Oeynhaus. “We have established ourselves as a center of scientific development and application in Hamburg and are growing steadily.” Participation in the event is free.

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## Reminder: CAN Is “Landmark in the Land of Ideas” in December



On 4 December 2008, CAN GmbH will be one of the “chosen” when the research facility represents Hamburg in the series “365 Landmarks in the Land of Ideas”. This is a joint initiative of “Germany – Land of Ideas” and the Deutsche Bank. In 2008, CAN GmbH is one of 16 Hamburg initiatives in the “Land of Ideas” and will present itself to the interested public at an “Open House” in December.

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## Key Technology for Life Sciences



How important is nanotechnology to life sciences? BAY TO BIO – Förderverein Life Science Nord e.V. (Sponsor Association Life Science North) extended an invitation to the event “Nanoparticles – Key Technology also for the Life Sciences?” held on the 10th of September on the premises of CAN GmbH. Several experts presented the potential uses of nanotechnology in the life sciences.

“Functional nanoparticles will play an increasingly important role in molecular detection, i.e. in solutions for problems in diagnostics and therapy. Patent-protected technologies allow us to develop and produce nanoparticles to meet the customer’s requirements, in many cases using self-organization processes found in nature,” explained CAN COO Frank Schröder-Oeynhausen, who presented the various technology platforms of CAN GmbH in his talk entitled “Nanotechnology at CAN: From Research to Product”.

Also giving talks besides CAN GmbH were experts from the LZH (Laser Center Hannover) and Particular GmbH i.G. on “Laser-generated Nanomaterials and the Potential in Medicine” as well as scientists from Philips Technology GmbH on “Magnetic Particle Imaging – A New Method for the Imaging of Magnetic Nanoparticles”.

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## CAN GmbH Partners

### In good company

Beiersdorf AG [www.beiersdorf.com](http://www.beiersdorf.com)

Eppendorf AG [www.eppendorf.com](http://www.eppendorf.com)

Olympus Winter & Ibe GmbH [www.olympus-owi.de](http://www.olympus-owi.de)

PerkinElmer Hamburg [www.perkinelmer.de](http://www.perkinelmer.de)

Nanogate AG [www.nanogate.com](http://www.nanogate.com)

Merck KGaA [www.merck.de](http://www.merck.de)

Firmenich International SA [www.firmenich.com](http://www.firmenich.com)

Free and Hanseatic City of Hamburg [fhh.hamburg.de/stadt/Aktuell/behoerden/wissenschaft-forschung](http://fhh.hamburg.de/stadt/Aktuell/behoerden/wissenschaft-forschung)

Hamburger Sparkasse [www.haspa.de](http://www.haspa.de)

Hamburg Chamber of Commerce [www.hk24.de](http://www.hk24.de)

Innovationsstiftung Hamburg [www.innovationsstiftung.de](http://www.innovationsstiftung.de)

Norgenta North German Life Science Agency [www.norgenta.de](http://www.norgenta.de)

Competence Center Hansenanotec [www.nanoscience.de/hansenanotec](http://www.nanoscience.de/hansenanotec)

University of Hamburg [www.uni-hamburg.de](http://www.uni-hamburg.de)



CAN GmbH offers companies and research institutions contract research and development services in the area of nanotechnology and participates in national and international research programs. The focus of activities is on the utilization of new findings made in chemical nanotechnology and nanoanalysis, particularly in the areas of consumables, special polymers and health care. The main areas of expertise include, in addition to the characterization of nanostructures, the production of numerous nanoparticulate and nanocomposite materials, the encapsulation of active substances as well as the development of nanoparticle-based biological and medical markers.

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