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Prof. Michel, in your opinion, which area of nanotechnology will have the greatest impact on our future everyday lives, and why?

In my opinion, the areas of bionanotechnologies, medical nanotechnologies and nanoelectronics will become most important. But this development also requires a real breakthrough in the safety and reliability fields of nanotechnology research to overcome some existing problems connected with the worldwide acceptance of modern nanotechnology by human society.

What effect has your research already had on the automobile industry and what impact do you think it will have in the future?

The automotive industry has already become a key player in the field of application of modern nanotechnologies, e.g. application of modern nanomaterials, mems, microsystems, and microsensors. The complicated task of developing more advanced cars using the principles of electromobility can only be solved if the latest progress in nanotechnology research is taken into account. Then it will also become possible to reduce the large number of recalls by car companies worldwide due to failure and lifetime troubles which could not be avoided until now.

The Fraunhofer Micro Materials Center in Berlin has recently begun to work closely with the Fraunhofer Department of Environmental Engineering. How will this collaboration contribute to the role of nanotechnology in environmental sustainability?

Combining reliability and safety research in micro- and nanotechnologies with new results in environmental research will lead to real progress in many fields of science and technology. New fields of so-called "Clean Micro and Nanotechnologies" (also known as "Clean Tech") will have a very promising future and will contribute a lot to further increasing the acceptance of advanced nanotechnologies.

What is the relationship between nanotechnology and improved energy efficiency? And how has your research on nanoreliability contributed to this relationship?

Modern nanotechnology provides a very good basis for energy reduction in various fields of applications, mainly in key technologies. On the other hand, there are also some risks for worldwide applications of nanotechnologies. New technologies may be connected with new and unknown dangers too (nanoparticles can penetrate the human body and may cause very different reactions). Safety, security and reliability problems will become more and more important. This was the reason we founded the European Center for

Micro- and Nanoreliability (EUCEMAN), which is the leading European Network for reliability research and coordinates the activities of about 15 countries (see www.euceman.com).

From your perspective, what are some of the challenges nanotechnology will face in the future?

In my opinion, the combination of various nanotechnologies, e.g. bio-medical-nanotechnologies or sky-bio-nanotechnologies, will become important fields. The challenge of guaranteeing reliability, safety and security of these technologies will be a major topic of future nanotechnology research.