

## Biography Ille C. Gebeshuber



Prof. Dr. Ille C. Gebeshuber is expert in Nanotechnology and Biomimetics. Since 2009 she has been Contract Professor at the Institute of Microengineering and Nanoelectronics (IMEN), Universiti Kebangsaan Malaysia. Her permanent professorship affiliation is with the Vienna University of Technology (Austria) where she is habilitated for experimental physics. Furthermore, since 2007, she has been key researcher at the Austrian Center of Competence for Tribology in Wiener Neustadt. She is co-founder of the Vienna-based Center of Excellence for Biomimetics. Prof. Ille is Editor of a new journal on biomimetics, Associate Editor of the UK based Journal of Mechanical Engineering Science, Editorial Board Member of various scientific journals and editor of a book on biomimetics by Springer Scientific Publishing. She is highly active in Science Outreach and Board Member of UKM's *Permata Pintar* program, identifying and promoting Malaysian geniuses at early age.

### Research Interests:

#### **Biomimetics of Nanostructures, start 2008**

Focusing on detailed understanding of basic underlying principles of nanostructures that lead to physical colours (as opposed to pigment colours) in biological systems and the subsequent development of a fast, cheap and simple production method for such colours. Samples: butterfly wings with amazingly colourful scales made from nanostructures, peacock feathers structural colours (photonic crystals), moth eyes with antireflective surfaces, diatoms (glass making algae) with naturally nanostructured surfaces resulting in nice colours, beetle scales with chiral liquid crystal surfaces, Malaysian iridescent blue ferns (magic!), iridescent flowers.

#### **Nanomedicine, start 2007**

Collaboration with Prof. Fritz Aumayr, Institute of Applied Physics, Vienna University of Technology, and Franz Gabor, Pharmacy Department of the University of Vienna. AFM, nanoparticles, cancer cell targeting, stem cell differentiation depending on mechanical substrate properties.

#### **BioScreen Project, start 2009**

Analysis of the rich flora in South East Asia concerning its biomimetic inspirational potential for technological applications. Central aspect: installing cooperations between institutions in the European Union with local institutions in South East Asia. Increasing awareness about the technological innovation potential of the rainforest and its abundance of species might cause a paradigm shift in the way locals view the pristine forests. BioScreen is a pilot project with the installation of collaborations between key institutions serving as base for further projects as major task.