

**“Carbon composites for energy-related applications”**, by Professor Dr. Ir. **Joris DEGRIECK**

*As can be expected, this presentation on “energy-related applications” will start with the increasing use of carbon fibre-reinforced composites in wind turbine blades, because of their well known high stiffness- & strength-to-mass ratios, as well as their excellent fatigue properties. But this subject goes much further than that. Through some less known but exciting applications, we will show how carbon composites can contribute to revolutionize our world.*

*Indeed, it might surprise that these light materials are very well suited for kinetic energy storage in flywheel batteries, or that these brittle materials are used for temporarily storage of elastic energy in vaulting poles and prosthetic feet, and are also used for efficient energy absorption by crushing of cones or other elements in cars and helicopters. Did you know that the easy-to-oxidize carbon-carbon composites are used in heavily burdened disk brakes for stopping cars and planes, and that they were the first materials of choice for diverter wall elements in nuclear fusion reactors? And did you know that you can use the carbon fibre reinforcement itself to generate the necessary heat for initiation of a curing reaction ? Indeed, this is all about “energy”....*



Joris DEGRIECK received his M.Sc. in Electromechanical Engineering at Ghent University in 1982, where he obtained his PhD in 1990, with a twice awarded research on the impact behaviour of composite materials. He began his career as project leader at SIRRIS (Collective Centre for the Belgian Technology Industry) and started lecturing on the mechanics of composites at Ghent University in 1988, where he is currently senior full Professor and Head of the Materials Science and Engineering Department. He was vice-chairman of the 10<sup>th</sup> European Conference on Composite Materials and has been the co-author of over 270 publications. His main scientific expertise relates to the mechanical behaviour of fibre reinforced composites, running national and international projects on the development of damage models for composites under dynamic loading, as well as on non-destructive monitoring and characterization.