FIAS Seminar

Thursday, November 26, 2009, 14:30
FIAS, Ruth-Moufang-Str. 1, 60438 Frankfurt am Main
Lecture hall 0.100

Speaker: **Prof. Dr. Martin Greiner**, Siemens AG, Munich

Title: **Wind power and physics: on turbulence, wind farms, and complex networks**

Abstract: Wind flows always come with turbulence and as such produce fatigue loads to wind turbines. To enhance the engineering integrity of turbines it is important to model turbulence as realistic as possible. It will be demonstrated how the standardized model turbulent wind fields used by engineers can be significantly improved with multifractal processes known from Statistical Physics. The second subject concerns the optimization of wind farms and how selfish turbines turn cooperative. Again turbulence plays a prominent role and causes big challenges on the future control of wind farms. The last part of the seminar develops a vision of a future European power transmission network, which considers generation from renewable sources only.