



# **Einladung zum Physikalischen Kolloquium**

Montag, 20.4.2009  
16.15 Uhr, H2 (O25)

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## **„ Issues of Materials and Structural Integrity for Fusion Reactor Technology “**

In 2007 the conceptual design of the future European DEMO (Demonstration Reactor) was commenced together with the construction of the ITER (International Thermonuclear Experimental Reactor). DEMO should demonstrate the economical as well as technological feasibility of fusion power generation. In the design activity for DEMO, the engineering problems such as materials development and lifetime assessment are essential challenges to establish a reasonable design concept toward a commercial Fusion Power Plant. Thus, the current worldwide fusion research programs are strongly supporting materials-oriented efforts besides the fusion plasma physics.

In the Materials Research Division of the Max-Planck-Institute of Plasma Physics (Garching) interdisciplinary study of materials-related issues has been performed ranging from plasma-wall interaction to component development. In this talk, a comprehensive treatment of this wide subject is given for a non-expert scientific audience. The presentation begins at first with a general background of nuclear fusion reactors, which is then followed by the generic material problems from both engineering and scientific points of view. Finally, several selected topics related to the speaker's own research fields are presented in terms of integrated dual scale failure analysis of a composite structure under fusion loads.

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