



Physikalisches Kolloquium Einladung

Physics Colloquium Invitation

Monday, 14 January 2019, Lecture Hall N24/H13, 16:15
Coffee and cookies will be served in front of the lecture hall from 16:00

The challenge of power exhaust for ITER

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ITER is the next step device for Nuclear Fusion Research, a major project in science carried out by the European Community, USA, Russian, Japan, China and South Korea as the main partner. This experiment is the largest tokamak ever built and currently under construction in Southern France. Its design is the result of decades of intense research by IPP and other research labs worldwide.

The main goal of ITER is to study a burning plasma and seeks to reach $Q=10$, thus is designed to produce about 10 times the fusion power (500MW) when compared to the auxiliary heating power (50MW).

Despite the great success the fusion community did achieve for plasma confinement to reach conditions necessary for such a burning plasma, the challenge of exhausting of the convective part of the fusion power through the plasma-facing components did widely receive large attention in the past few years.

In an internationally coordinated approach the so called power width (or power load wetted area), one of the key quantities of power exhaust, was carefully measured at 6 operating tokamaks and found to scale inversely with plasma current and to be independent of the machine size. This causes a major challenge for ITER and other 'big' future devices as the projected value of the power width is about five times smaller as initially assumed.

The talk will layout the basic design of ITER w.r.t. physics and technology goals and focus on recent results of power exhaust physics.

