Dr. Renato Gatto  
Dept. of Astronautical, Electrical and Energy Engineering  
Sapienza University of Rome, I

The tilted toroidal field coil concept for tokamaks

Since the late '80 a considerable amount of work has been done on the implication of tilting in the azimuthal direction the toroidal field coil of a tokamak. Tilted coil with different properties have been proposed, and even small prototype tokamaks have been built.

The two immediate advantages introduced by tilted coils are (i) a drastic reduction of some components of the electromagnetic forces in certain areas, and (ii) the generation of poloidal field, in addition to toroidal field. The former advantage allows for a partial relaxation of the reinforcing structural material required in the machine design, while the poloidal flux could be used alone or in conjunction with a conventional central solenoid to simplify the design and/or achieve better performances.

Despite the work done, it is however not yet clear whether "a tilted tokamak" provides enough benefits to stimulate further studies and eventually its realization on real scale. In this talk, I will review some of the work done so far, and present preliminary results of my research effort on the topic.

Tuesday 9 May 2017 at 10:30  
EPFL-SPC, Seminar Room, PPB 019