

Prof. Ambrogio Fasoli Tél. +41 21 693 34 92
EPFL - SB - CRPP-GE +41 21 693 19 41 (secrét.)
Station 13 Fax: +41 21 693 51 76
CH-1015 Lausanne ambrogio.fasoli@epfl.ch

To Whom It May Concern

July 19, 2010

Invitation to discuss and participate in the TCV 2010-2011 experimental campaigns

Dear Colleague,

We would like to invite you and your Team to participate in the TCV 2010-2011 experimental campaigns.

The general mission of TCV ($R=0.9\text{m}$; $a=0.25\text{m}$; $B_T \leq 1.5\text{T}$; $I_p \leq 1.2\text{MA}$; $1 < k < 2.8$; $-0.7 < \delta < 1$) is to contribute to the physics basis for ITER scenarios, to the DEMO design and in general to tokamak concept improvements.

We believe that the large degree of flexibility of the device and its heating systems as well as in the planning and execution of the programme, which remains constantly open to the injection of new ideas, makes external participation easy and efficient.

We strongly encourage participation at an early stage of the discussion of the programme, in which all individual ideas are presented and discussed with the whole team and collaborators.

This brainstorming exercise will take place in Lausanne, on September 15 and 16.

Remote participation will be possible for the brainstorming, and for the actual experiments.

The brainstorming will be structured according to the following research themes, which characterise the present campaign, though these represent only an initial reference:

- Transport in shaped L- and H-mode plasmas: particles, energy and toroidal momentum
- Scenarios with Internal Transport Barriers and developments towards steady-state operation
- Increasing plasma beta with X3, exploring quiescent ELM-free H-mode
- ECH and ECCD physics, including breakdown assistance
- Advanced plasma control
- Edge and core electron-dominated turbulence
- Advanced shaping and divertor concepts
- Preparation for medium term developments, which include in-vessel coils for ELM control, additional X3 power (total $\sim 2.6\text{MW}$), and direct ion heating by NBI ($\leq 3\text{MW}$)

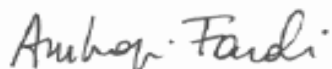
The capabilities of TCV for the 2010-2011 campaigns include:

- EC power of 3.5MW (5x0.5MW X2 and 2x0.5MW X3 – repairs of one additional X2 and one additional X3 system will be under way)
- Extreme shaping (negative δ , high κ , single- and double-null, hexapolar *snowflake* divertor)
- New integrated digital control system, based on a distributed network with reflective memory connectivity allowing real-time multichannel diagnostic analysis (e.g. for control of MHD, electron transport barriers, optimisation of X3 injection and X2 wave polarisation)
- New disruption mitigation and impurity injection fast valve
- Various diagnostic upgrades, including tangential PCI for density fluctuations, enhanced spatio-temporal resolution and sensitivity of poloidal and toroidal rotation data, LH parametric instability probe, oblique and vertical ECE, tangential X-ray detectors, tomographic hard X-ray spectroscopy, visible fast framing camera, Doppler reflectometer.

Details on the meeting of September 15 and 16 will be circulated at a later date.

Please contact us if you are interested and if you need further information.

We look forward to your proposals and to your participation in the TCV research programme.



Ambrogio Fasoli
Executive Director
Head of TCV



Stefano Coda
TCV programme coordinator