

Task 2.4 on LHC Collective Effects Studies

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- ◆ See <https://espace.cern.ch/HiLumi/WP2/task4/SitePages/Home.aspx>
- ◆ **Requested info =>** List of sub-tasks, expected deliverables & deadline & participants (names and **FTEs**)

Last info still missing =>
Another iteration needed

SUB TASKS

- ◆ **2.4.1: Impedance and wake field calculations for new components of the upgrade options**
- ◆ **2.4.2: Estimates for the required corrector circuit settings (chromaticity and Landau damping octupoles) and additional heat loads**
- ◆ **2.4.3: Provide estimates for the Intra Beam Scattering (IBS) growth rates for different beam parameters**
- ◆ **2.4.4: Proposals for beam/lattice manipulations to increase the LHC performance, such as flattening of the longitudinal distribution, use of circular optics, change the shape of the beam spectrum and/or avoid side lobes (if needed for the RF heating) etc.**

DELIVERABLES AND MILESTONES

- ◆ **D2.4: Collective effects beam intensity limitations [report, month 36 => End 2014]**

INPUTS NEEDED

- ◆ **Beam parameters**
- ◆ **Drawings (3D) of new components to be installed/modified and the ones to be removed, and exact location => Ex: Crab cavities etc. (in the past an impedance budget was given => To be reviewed etc.)**
- ◆ **All the different optics to be considered**

TASK FORCE BEING CREATED FOR ALL LHC RF FINGERS

- ◆ **See <http://emetral.web.cern.ch/emetral/LRFF/LRFF.htm>**
- ◆ **1st Kick-off meeting currently foreseen on Tuesday 13/03/2012**
- ◆ **Conclusions and recommendations to be given in fall 2012**

PARTICIPANTS (1/3)

◆ Sub Task 2.4.1 (Impedance)

- CERN impedance team => Benoit Salvant + Hugo Day + Fritz Caspers etc.: ? FTE
- Rainer Wanzenberg (contact person for DESY) + Olga Zagorodnova: ? FTE
- Mikhail Zobov (contact person for LNF INFN, Frascati) + David Alesini + Alessandro Gallo + Bruno Spataro : ? FTE
- Mauro Migliorati (contact person for La Sapienza, Roma) + Luigi Palumbo + Andrea Mostacci: ? FTE
- Oliver Boine-Frankenheim (contact person for TU Darmstadt) + Uwe Niedermayer + Paul Görgen: ? FTE

◆ Sub Task 2.4.2 (Instabilities and heat loads)

- CERN instabilities team (from impedance, space charge and ecloud) => Giovanni Rumolo, Nicolas Mounet, Frank Zimmermann etc.: ? FTE
- Elena Shaposhnikova (CERN, longitudinal): ? FTE
- Wolfgang Hofle (CERN, transverse damper): ? FTE
- Mikhail Zobov + David Alesini + Alessandro Drago + Alessandro Gallo => In particular, e-cloud suppression with clearing electrode in operational conditions + possible participation in LHC MDs aimed at different instability studies: ? FTE

PARTICIPANTS (2/3)

- *Mikhail Zobov + Alessandro Drago + Fabio Marcellini => Work together with LARP people (John Fox and others) on the feedback for e-cloud instability suppression in SPS (Marcellini: dedicated kicker design, Drago: feedback design and measurements): ? FTE*
- **Oliver Boine-Frankenheim (contact person for TU Darmstadt) + Uwe Niedermayer + Paul Görger => Ecloud studies: ? FTE**
- **Alexey Burov (FNAL, currently at CERN through USLARP): ? FTE**

PARTICIPANTS (3/3)

◆ Sub Task 2.4.3 (IBS)

- CERN IBS team: John Jowett et al., Michel Martini (retired): **Few % FTE**
- Deepa Angal-Kalinin (contact person for STFC and only contributor): **? FTE**
- Oliver Boine-Frankenheim (contact person for TU Darmstadt) + Uwe Niedermayer + Paul Görger: **? FTE**
- Alessandro Vivoli (FNAL): **No official time...**

◆ Sub Task 2.4.4 (Beam/lattice manipulations)

- CERN ABP and RF groups: **? FTE**
- Alexey Burov: **? FTE**
- Mikhail Zobov + David Alesini + Alessandro Gallo => Participation in the 800 MHz harmonic cavity design studies (already in contact with Elena Shaposhnikova): **? FTE**