

## Minutes of USC Instrumentation meeting on 03-06-2010

**Present:** J. Caride, J. Visniakov, P. Vázquez, E. Pérez, A. Gallas, A. Pazos, P. Rodríguez, D. Esperante.

### **1) DEPFET**

Irradiation activities status at Santiago (E. Pérez, P. Vázquez):

There are 3 chips. We instrumented 30 transistors in all of them but in one (called the dummy) in which we instrumented only 28. After some testing we found out that:

DUMMY: 10 BROKEN OUT OF 28 ( 18 OK)

CHIP1: 15 BROKEN OUT OF 30 (15 OK)

CHIP2: 8 BROKEN OUT OF 30 (22 OK)

Originally the idea was to irradiate chip1 and chip2. Given the failure ratio we will irradiate chip2 and the dummy. We say a transistor is malfunctioning when the current between the drain and the source  $I_{ds}$  versus  $V_{gs}$  (gate tension) is not what we expect from a MOSFET.

The irradiation campaign was moved from the 4<sup>th</sup> of June to the 15<sup>th</sup> of June. We need to bear in mind we need 5 weeks of irradiation.

Status of Belle LV design prototype (P. Vázquez, J. Visniakov):

J. Visniakov presented the status of the prototype of the Belle LV system. There was some discussion and ideas that he summarized below:

Plans: Javier Caride is involved into design of power supply too (instead of TB analysis). Together with Jevgenij they will participate in DEPFET bi-weekly EVO meeting next week (08.06) to make some presentation and to ask Bonn people for prototype board of Switcher-B, DCD for making design correctly. Group is going to buy other voltage regulators (LT1764, Aeroflex VRG8651/VRG8652) and to check for voltage oscillations, adjustment and sensing possibilities on the same LHC testboard. Also, by suggestions of Daniel, it is necessary to try right cable, which we will use in real circuit and to check the testboard (voltage regulator) with active load resistance. Some further investigations of existing LHC4913 regulator are going to be made: to use resistance between regulator ground and return ground to compensate the cable length and get better sensing, either change resistance R1 to the potentiometer in the voltage divider of adjustable input. Work is ongoing to make schematics for these parts: negative voltage regulator, part for measuring of current and voltage (with ADC), micro controller with USB interface.

Issues: Do we have free old LHC4913 voltage regulator at CERN? Can we buy it easily in the market? It is necessary to check the heat dissipation of new version LHC voltage regulator with 16 pins, as it is available into various hermetic ceramic packages, but not metal as old one. Not clear, how to get three voltages (VRefIn, VAmpLow and VDDC) in the output, as their values are less than minimal available voltage from regulator output. There is ELMB monitoring board used for current and voltage measuring and controlling in the LHC and it is very confused (3 part of the board with many microcontrollers), still it is necessary to design something similar, but less complicated, for our power supply. Can we use digital potentiometer? Is it possible to make current sink for AmpLow voltage with a voltage regulator?

### **3) PR01 test-beam in May preliminary results (P. Rodríguez)**

Although the little beam time we had so far we could collect some data. P. R showed some preliminary plots.