UCL Université catholique de Louvain

Faculté des Sciences
Unité de Physique Nucléaire - FYNU

Louvain-la-Neuve, the 7th of December 2001

Dear all,

Here are Louvain's interests in the «SMART» collaboration on rad-hard devices for very high luminosity colliders.

1. Interests (& current activities)

As we are strongly involved in the CMS tracker, and especially in the rad-hard testing of the silicon sensors [*], our interests are mainly focused on the basic studies mentioned in the proposal.

Looking at the setup that is now ready in Louvain-la-Neuve within the CMS framework, studies of irradiations at different temperatures, effects of biasing during irradiation and the comparison between test structures (like diodes) and full-sized devices with comparable measurements procedures are certainly among our concerns.

Another irradiation facility within the CMS collaboration is Karlruhe and its proton beam.

Regarding this, we are highly concerned with the Neutron-proton problem. Comparison of the doses, dose rates and fluences implies a deep understanding of the effects of microscopic defects and their kinematics.

In order to achieve our goals, we will also have to carry some investigations on the particle and energy dependencies (neutrons >20 MeV).

2. Equipment

All the irradiation facilities around our cyclotrons are available within the framework of the collaboration. These includes ion, proton and neutron beams. All the irradiation zones can be equipped with acquisition and cooling systems (from ambient to –40°C).

Fees and funding for beam time have to be discussed.

Our lab is now equipped with a probe station (8" cooled chuck) and the measurement needed (LCR, Sourcemeter, electrometer, switching matrix…). We will soon get the equipment for alanine dosimetry.

3. People

We are 3 persons working mainly on the CMS sensors. Samia Assouak and Eric Forton (PhD students), supervised by Pr. Ghislain Grégoire. Physics students looking for a diploma thesis will be informed about the collaboration and encouraged to join for a couple of months.

Our time investment in this collaboration has to be defined when we all know the exact time needed to fulfill our duties in CMS.

Looking forward to see you soon (and at least in march…), best wishes to you all,

Louvain.

[*] But also in the cooling of the CMS tracker endcap, testing of hybrids and readout electronics, implementation of trigger algorithms and physics…

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