Ladies and Gentlemen, Dear Colleagues,

I am very glad you participate to this second MAESTRO conference on medical applications on the use of Monte Carlo codes for a more precise dose calculation in TPS.

In a few words :

MAESTRO is an Integrated Project of the Sixth Framework Programme (FP6) launched by the European Union. It has been built in 2003 from three manifestations of interests, namely MAESTRO, NEDOME concerning proton therapy and RAPORT concerning patient positioning and organ tracking.

MAESTRO includes 6 work-packages (WP), each of them being split in sub-WPs.

The first WP deals with patient positioning, organ movement and tracking, dynamic phantom and the corresponding image scanning. In addition to this WP, Proton Beam Scanning (PBS) nozzle studied by IBA has been added.

The second WP deals with patient image processing and also with dose calculation, which is the aim of this conference, based on PENELOPE code Monte Carlo technique developed by the University of Barcelona.

The third WP is devoted to high energy dosimeters and dosimetric imagers.

The fourth WP specifies all the requirements needed by medical practitioners and defines the procedures used to validate the ability of tools developed in MAESTRO to fill up the requirements in clinical situations.

The fifth WP concerns formation, training, workshops and dissemination of knowledge obtained during the MAESTRO project.

The sixth WP concerns the management of MAESTRO.

The MAESTRO programme is in good progress and today a part of foreseen tools, devices and software, has been realized.

As it was previously said, this conference day is mainly devoted to progress made inside MAESTRO for the fast calculation of dose distributions in patient by the use of the Monte Carlo method. Why Monte Carlo ? Because all physics of matter to radiation interactions can be included in Monte Carlo codes allowing right and accurate results even in case of multiple heterogeneities, such as lungs or bones.

Close to this thematic, works performed in the TELEDOS project (funding by the French National Research Agency) corresponding to a powerful calculation cluster, specially devoted to the PENELOPE Monte Carlo code, will be presented and experimented in real time. Used as a local or remote machine, it can be considered as a technical extension to the MAESTRO

project. Being extremely powerful, it allows to meet medical requirements by strongly reducing calculation times down to a few minutes.

I am sure that you will enjoy this conference devoted to a new concept of dose calculation in TPS which was not effective up to now.

On the behalf of the organizing committee.

Jean Barthe
Research Director at CEA

Aurélie Isambert
Medical Physicist at IGR