

## SHORT-TERM SCIENTIFIC MISSION

### SCIENTIFIC REPORT

COST Action Number: P9

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Host's Name and Institution: Marie-Jeanne Hubin-Franskin, Institut de Chimie Sart-Tilman

Period: from 26/01/2005 to 29/01/2005

Place: Liège (BE)

Reference code: COST-STSM-P9-00983

#### Report

The main objective of this visit was to recognize the electron scattering experimental system placed in Liege, in order to define a collaborative plan between both research groups. The subject of this collaboration will be the study of the secondary electron interactions in methane based tissue equivalent materials. After this visit we can conclude that their low energy electron spectrometer is an excellent complement to the intermediate and high energies system placed in Madrid. From a detailed analysis of the experimental requirements and a discussion of methods and procedures, we have proposed the following timetable:

- February-May 2005: Adaptation of the Liege apparatus to the conditions of the new experiment: Repair the needle gas inlet, increase the range of the energy loss spectra, calibrate the transmission of the spectrometer as a function of energy and prepare the gas targets.
- May-July 2005:
  - Liege: Measurement of electron energy loss spectra from the molecular constituent of tissue equivalent materials (methane, carbon dioxide and nitrogen) as a function of the scattering angle for incident energies ranging from 10 to 100 eV. In this period, a Spanish student will visit Liege to assist the measurements.
  - Madrid: Electron energy loss measurements at intermediate and high energies (100-5000 eV) as well as the total electron scattering and ionisation cross section measurements in this range. By the end of this period, researcher from Liege laboratory should visit Madrid to discuss the results of the experiments.
- July-September 2005: Publication of results and discussion the new steps of the collaboration.