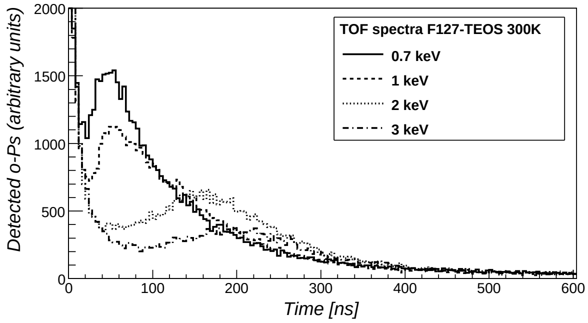

FIG. 3: *TOF spectra of the F sample for positron implantation energies of 0.7-1-4-10 keV.*

Ps in the beam pipe, with the time-of-flight method one measures only the mean of the energy component perpendicular to the collimator that we define as the z-axis (we define it as $< E_z >$). The triangles in Fig. 4, represent it as a function of the implantation energy. One

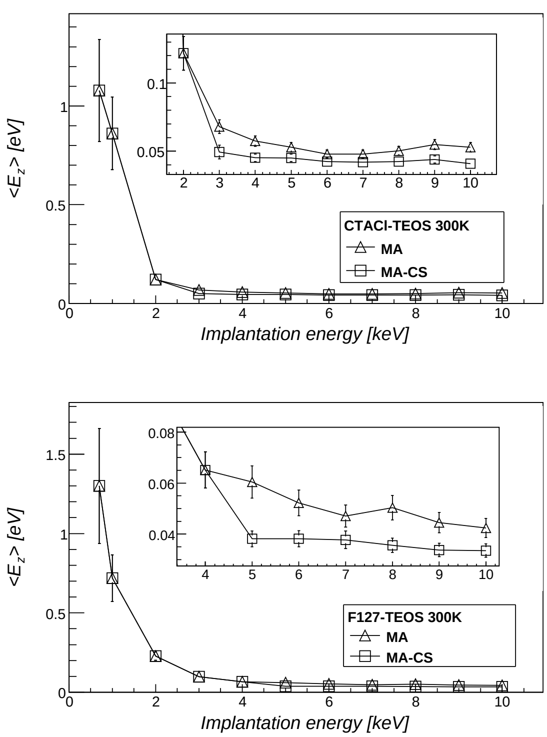

FIG. 4: *Positronium mean emission energy $< E_z >$ as a function of the implantation voltage at a target temperature of 300 K. The triangles represents the energy extracted with the maximum analysis method (MA), the squares are after the subtraction of the non-thermalized part (maximum analysis method after correction of the spectra, MA-CS).*

can see that starting from 3 keV for the C sample (this was confirmed by other measurements on similar samples [40]) and 4 keV for the F sample the value of the energy emitted in vacuum tends to be constant. Clearly, the emission energy of Ps calculated in this way is not the minimal energy due to the confinement in the pores because one has different contributions given by the convolution of the emission energy with the implantation profile. In order to isolate the thermalized part from the TOF spectra, one has to subtract the contributions of non-thermalized Ps components (see Fig. 5). To estimate these non-thermalized contributions, we suppose that the shape of their distribution, NT(t), is represented by the TOF spectrum obtained at a low implantation energy. To select the implantation energy (from the ones we had measured) and the scaling factor of NT(t) for the subtraction, we relied on the MC. We used the values for which the best fit between the MC and the spectra obtained after the subtraction of NT(t) was achieved (for more details see [61]). We found that the best fits were obtained for 2 keV with L_{2keV}=200 nm in the case of the C sample, and 3 keV and L_{3keV}=350 nm for the F sample. For a given implantation energy E_i, NT(t) is scaled down by the fraction of positrons implanted at depths smaller than L_{2keV} and L_{3keV}. This was determined by using a Makhovian profile.

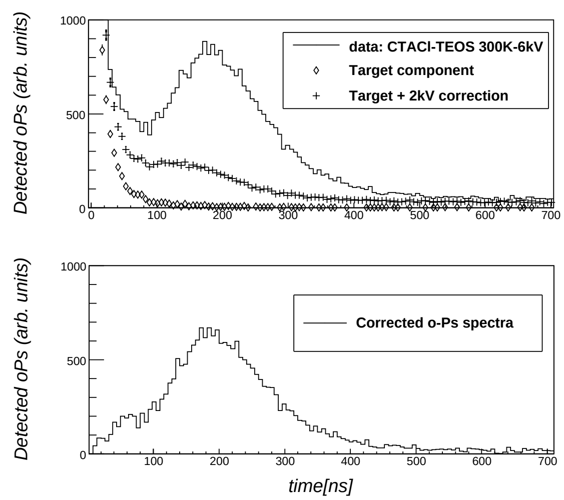

FIG. 5: *Upper plot: the solid line is the TOF spectra without correction, the diamonds is the contribution from the target and the crosses is the sum of the contribution from the target and the non-thermalized part. Lower plot: the TOF spectra after the correction of the target and the non-thermalized components.*

The results of this analysis are shown as the squares in Fig. 4. A parabolic fit is used to determine the position of the maximum. The statistical error of the fit is typically ±9 ns for the F and ±6 ns for the C sample. The uncertainty on the determination of the slit position of ±0.1 mm results in a systematic error of the order of