

## **Referee report on the project “Development of experimental techniques and applied research with slow monochromatic positron beams (PAS)”**


Positron annihilation spectroscopy (PAS) is a well-established method of studying the density and momentum distribution of electrons in condensed matter, its most important application being to obtain information on voids and defects in solids. The initiative to use the LEPTA facility for PAS applications dates back to 2013. In June 2017, the PAC took note of the progress in the development of the PAS method at LEPTA including the construction of a specialized channel of slow monochromatic positrons (SCSMP) and the elaboration of a proposal for the formation of the ordering flux of positrons based on SCSMP to be used for positron annihilation lifetime spectroscopy. Accordingly, in the period 2018–2020 the main purpose of the project was constructing and commissioning the positron transport channel and the experimental station and applying it to positron lifetime studies as well as optimizing the positron accumulation in the positron trap to achieve an intensity of  $10^7$  positrons per cycle.

Unfortunately, probably mainly due to deficiencies of the questionnaire template, the submitted project report (a.k.a. ‘filled-in questionnaire’) gives insufficient information on several important points. Among others, these include:

- a) No information is given on the technical status of the slow-positron source, the progress in building the beam with positron ordering and its possible use in experiments.
- b) It is unclear which part of the group activity was related to LEPTA and which part was related to conventional laboratory positron lifetime and Doppler broadening experiments and, furthermore, whether this latter part can be (and, if so, why can be) considered to be part of the project.
- c) The report is perfunctory from linguistic and editorial point of view.

In conclusion, the project report should be returned to the project leader for completing it in the light of the above comments (not necessarily insisting on the format previously distributed template) and the final prioritization exercise should be shifted to the June 2021 PAC meeting.

Budapest, 27 April 2021.



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