To whom it may concern Paris, June 26th

I am following the research work of Vladislav Todorov since his arrival in the laboratory of Dr Krasimir Mitev at Sofia University. Vladislav started to work on the traditional topics of this laboratory, namely radon measurement and more recently radionuclide calibration using the Triple to Double Coincidence Ratio method (TDCR) in Liquid Scintillation Counting (LSC). Then he started to develop an innovative Compton-TDCR spectrometer to study the non-linearity of organic scintillator at low-energy, and this was the main goal of his PhD thesis research.

Based on his strong background in general physics, Vladislav acquired specific expertise in the scintillation processes of organic scintillators, radionuclide metrology, and radiation–matter interactions. He also applied his skills in mechanics, electronics, and data processing to design the complete system and to characterize the photomultiplier tubes used in the device. This led to the development of a test platform for quantifying the spatial response of the photocathode to light excitation. This work has attracted interest from the radionuclide metrology community, as it enables the accurate incorporation of photomultiplier tube (PMT) properties into Monte Carlo simulations of liquid scintillation counters.

The Compton–TDCR system developed at Sofia University by Vladislav and Dr. Mitev's team is likely one of the most advanced devices ever realized in terms of detection efficiency and energy resolution of the gamma-channel detector. Its robust design enabled accurate and reproducible characterization of the response of various liquid scintillator cocktails at low energy. The energy range covered by this experiment is of significant interest, as it provides essential data for the calculation of detection efficiency in liquid scintillation counting. Vladislav fully characterized this instrument and used it for systematic studies of various scintillators. He also developed and implemented several data analysis and uncertainty evaluation programs to characterize scintillator non-linearity. Beyond their fundamental interest, these results open the way to the development of new absolute liquid scintillation measurement methods based on experimental non-linearity data rather than previously used semi-empirical models.

During his research work, Vladislav has published five high-quality papers in international peer-reviewed journals and is well known and respected within the international radionuclide metrology community.

In conclusion, I believe that Vladislav Todorov has carried out outstanding work during his PhD work and achieved remarkable results. I am confident that this is only the beginning of a very promising research career.

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