



Contribution ID: 145

Type: **Contributed Oral Presentation**

Charged particle spectroscopy with an optical time-projection chamber

Monday, 26 May 2025 16:45 (15 minutes)

Studies of rare decay channels require special instrumentation providing high efficiency and sensitivity. An example of such an approach is the Optical Time Projection Chamber (OTPC) developed at the University of Warsaw. It was designed to study two-proton radioactivity ($2p$), but it proved to be an excellent tool for studies of other decay channels accompanied by the emission of charged particles. Among important results obtained with the help of the OTPC, in addition to $2p$ spectroscopy [1,2], are the first observation of the β -delayed three-proton emission in four nuclei [3,4,5,6], a study of ${}^6\text{He}$ decay into the $\alpha + d$ continuum [7], and a study of β -delayed charged particle emission in the decay of ${}^{11}\text{Be}$ [8].

In the talk, I will present the experimental technique based on the OTPC detector and illustrate it with a selection of results obtained with the help of it, focusing on the most recent achievements.

References

- [1] K. Miernik et al., Phys. Rev. Lett. 99 (2007) 192501.
- [2] M. Pomorski et al., Phys. Rev. C 90 (2014) 014311.
- [3] K. Miernik et al., Phys. Rev. C 76 (2007) 041304(R).
- [4] M. Pomorski et al., Phys. Rev. C 83 (2011) 014306.
- [5] A.A. Lis et al., Phys. Rev. C 91 (2015) 064309.
- [6] A.A. Ciemny et al., Phys. Rev. C 106 (2022) 014317
- [7] M. Pfützner et al., Phys. Rev. C 92 (2015) 014316.
- [8] N. Sokołowska et al., Phys. Rev. C (2024) 034328.

Primary author: PFUTZNER, Marek (University of Warsaw)

Presenter: PFUTZNER, Marek (University of Warsaw)

Session Classification: Parallel Session

Track Classification: Nuclear Structure