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NAME: Sophie Antonia Penger

AFFILIATION: University of Cologne

CONTRIBUTION: Poster

TITLE: Extragalactic planetary nebulae in the dwarf galaxy VCC 1249

AUTHORS: Sophie Penger

AFFILIATIONS: University of Cologne

ABSTRACT:

Planetary nebulae (PNe) exhibit a distinct bright [OIII] emission at 5007 Å. This study is focused on the dwarf galaxy VCC 1249, located in the halo of M49, and utilizes MUSE (Multi-Unit Spectroscopic Explorer) data to explore the kinematics and identification of PNe within this system. Due to the integral-field spectrography, individual planetary nebulae can be identified. Based on the work carried out during an ESO summer project, this research serves as the foundation for an MSc thesis.

To identify potential PNe candidates within VCC 1249, the method presented by Roth et al. in 2021 is utilized. Through this approach, 10 candidates that exhibit features consistent with PNe properties have been identified. Three of these candidates show promising agreement with the PN catalog compiled by Hartke et al. in 2018. Furthermore, the analysis includes the differentiation of these candidates from H-alpha sources.

This study tries to contribute to the understanding of PNe within VCC 1249 and also reveals their kinematic properties. The utilization of MUSE data enables a detailed analysis of this system positioned in the halo of a larger galaxy. Additionally, it will be providing information for further investigations into the stellar populations, chemical properties, and evolutionary processes within the system and aims to better understand the link between the PN population properties and those of their host stellar population.