Contribution ID: **103** Type: **Oral Presentation**

The Transformative Role of the Astronomy Olympiad Framework in Advancing Astronomy Education in the Southernmost Provinces of Thailand

Thursday, 4 September 2025 11:30 (15 minutes)

This study aims to investigate the transformative impact of the Astronomy Olympiad framework in advancing astronomy education in Thailand's five southernmost provinces—Pattani, Yala, Narathiwat, Satun, and Phatthalung—where access to advanced science education has long been limited. Set against the backdrop of socio-political complexity, cultural diversity, and educational disparity, Olympiad-related activities have played a crucial role in reshaping how astronomy is taught, valued, and integrated into local school systems. Using qualitative methods, including in-depth interviews with science teachers, students, and school administrators, as well as field observations and group discussions with Olympiad participants, the research reveals that the Olympiad has evolved beyond a competition into a catalyst for educational development. Teachers identified it as a turning point that motivated them to pursue professional training, update teaching practices, and collaborate with peers across schools. Several schools introduced astronomy clubs, training sessions, and selection systems to support student participation. For students, the Olympiad transformed astronomy from an abstract subject into an exciting, hands-on experience. Many gained their first exposure to observational tools, scientific reasoning, and the dynamics of academic competition, which for some became a pathway to further studies and careers in science. Administrators, in turn, began to view Olympiad participation as a metric of institutional quality, prompting broader support for astronomy education. In the absence of the Olympiad framework, astronomy would likely remain marginalized due to a lack of expertise, equipment, and standardized materials. The Olympiad fills this gap by providing structure, motivation, and recognition, elevating astronomy into a meaningful component of science education in the region. In conclusion, the Astronomy Olympiad has emerged as a powerful vehicle for systemic change. It fosters teacher development, student engagement, and institutional collaboration, offering a model for how localized academic programs can effectively enhance science education in underserved and culturally complex regions.

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Session Classification: Oral Presentation

Track Classification: Extracurricular Astronomy Activities