

# **Towards the Moon Village Generation: The 2<sup>nd</sup> Edition of the MVA Italy Space Summer School Experience**

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## **Author Note**

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## **ABSTRACT**

The 2024 MVA Italy Space Summer School (SSS) "Beyond Borders Edition" was a remarkable event celebrating International Moon Day and advancing space education. The program featured seven engaging sessions from July 22<sup>nd</sup> to 25<sup>th</sup>, including two online and two in-person events and two keynote lectures. The school brought together 40 distinguished speakers from around the globe, representing student and young professional associations, academic and research institutions, space industries, and four national space agencies. Participants hailed from Bolivia, Ghana, Italy, Luxembourg, Peru, the U.S., and the UK. Over 130 registered attendees

participated in 18 insightful discussions, exploring diverse topics from space exploration and technology to societal and cultural impacts. The event spanned Dubai and Napoli, embodying the “Beyond Borders” spirit by fostering global collaboration and interdisciplinary innovation. This report will explore the Space Summer School’s unique interdisciplinary approach and how it facilitated collaboration among diverse stakeholders and the panel on that subject organized in the Space Education and Strategic Application 2024 conference.

**Keywords:** Moon Village Association, Non-Governmental Organization, Space Education, CubeSat Missions

## **“Hacia la Generación de la Aldea Lunar”: La 2ª edición de la Experiencia de la Escuela de Verano Espacial MVA Italia**

### **RESUMEN**

La Escuela de Verano Espacial (SSS) de MVA Italia 2024, “Edición Más Allá de las Fronteras”, fue un evento excepcional que celebró el Día Internacional de la Luna y promovió la educación espacial. El programa incluyó siete interesantes sesiones del 22 al 25 de julio, incluyendo dos eventos en línea, dos presenciales y dos conferencias magistrales. La escuela reunió a 40 distinguidos ponentes de todo el mundo, representantes de asociaciones de estudiantes y jóvenes profesionales, instituciones académicas y de investigación, industrias espaciales y cuatro agencias espaciales nacionales. Los participantes provenían de Bolivia, Ghana, Italia, Luxemburgo, Perú, Estados Unidos y el Reino Unido. Más de 130 asistentes registrados participaron en 18 enriquecedores debates que exploraron diversos temas, desde la exploración y la tecnología espacial hasta los impactos sociales y culturales. El evento, que se celebró en Dubái y Nápoles, representó el espíritu de “Más Allá de las Fronteras” al fomentar la colaboración global y la innovación interdisciplinaria. Este informe explorará el enfoque interdisciplinario único de la Escuela de Verano Espacial y cómo facilitó la colaboración entre diversas partes interesadas y el panel sobre ese tema organizado en la conferencia Educación Espacial y Aplicación Estratégica 2024.

**Palabras clave:** Moon Village Association, Organización No Gubernamental, Educación Espacial, Misiones CubeSat

## “迈向月球村一代”：月球村协会意大利太空暑期学校体验第二版

### 摘要

2024年月球村协会(MVA)意大利太空暑期学校(SSS)“超越边界版”是一场庆祝国际月球日和推进太空教育的盛会。该项目从7月22日到25日举办了七场精彩的会议，包括两场在线活动、两场线下活动以及两场主题演讲。学校汇集了来自世界各地的40位杰出演讲者，他们代表了学生和年轻专业协会、学术和研究机构、航天工业、以及四个国家航天机构。参与者来自玻利维亚、加纳、意大利、卢森堡、秘鲁、美国 and 英国。超过130名注册与会者参加了18场富有洞察力的讨论，探讨了从太空探索和技术到社会和文化影响等不同主题。此次活动横跨迪拜和那不勒斯，通过促进全球合作和跨学科创新来体现“超越边界”的精神。本篇报告将探讨太空暑期学校独特的跨学科方法，以及它如何促进不同利益攸关方之间的合作，如何促进2024年《太空教育与战略应用》会议上组织的该主题小组。

关键词：月球村协会，非政府组织，太空教育，立方体卫星任务

### Welcome & Introduction

The panel began with a warm welcome and introduction by the moderator, Dr. Jeremy Wood. In the opening remarks, the moderator highlighted the significance of the discussion, which focused on advancing the Moon Village vision through education and outreach. The panel aimed to inspire and prepare the next generation of space professionals to contribute meaningfully to realizing the Moon Village concept.

### Moon Village Association: Education and Outreach Activities

Alessandro Bartoloni presented an overview of the Moon Village Association's (MVA) education and outreach efforts. He emphasized the importance of fostering public interest and understanding of space activities as a foundation for building a sustainable future in space. The MVA's initiatives include workshops, webinars, and partnerships with academic institutions to

make space education globally accessible. The 2<sup>nd</sup> Italian MVA Space Summer School is a highlight of these efforts, and it serves as a platform to engage youth and early-career professionals. The presentation underscored how these activities align with promoting education and public engagement in space-related endeavors (Bartoloni, Peroni et al., 2024; Bartoloni, Manigli et al., 2024; Bartoloni, Romano et al., 2024).

### **Insights from the 2<sup>nd</sup> MVA Space Summer School**

Continuing the discussion, Alessandro Bartoloni shared key insights from the second MVA Space Summer School. He detailed how this program is a cornerstone of the MVA's mission to educate and inspire future space leaders. Participants from diverse backgrounds joined to learn, collaborate, and innovate, gaining valuable knowledge and experience in space systems and lunar exploration. The program featured hands-on projects like CubeSat design, bridging theoretical knowledge with practical application. Networking opportunities allowed participants to connect with leading industry professionals. By emphasizing teamwork and creative problem-solving, the summer school equips young professionals with the skills to address lunar exploration and settlement challenges.

### **The “Towards the Moon Village Generation” session**

Giovanni Romano presented a vision of fostering the Moon Village Generation, empha-

sizing the importance of empowering young professionals to lead lunar exploration initiatives. This vision includes building a global network of talent dedicated to the Moon Village concept and setting goals aligned with international collaboration and technological advancements. Romano highlighted young professionals' critical role in this journey, bringing fresh ideas, energy, and innovation to the field. He called for targeted investments in education, mentorship, and cross-sector collaboration to shape a future where lunar exploration and settlement become a reality. He also described the “Towards Moon Village Generation” session he moderated at the school. It saw the participation of speakers from three significant Italian space student associations: SASA of Sapienza Roma University (<https://www.sasa-aerospace.it/>), POLISPACE of Politecnico di Milano (<https://polispace.it/>), and EUROAVIA of Naples (<https://www.euroavianapoli.eu/>). To testify to future projection, the session was opened by a speech by Dr. Bob Lamboray from the Luxembourg Space Agency, one of the “youngest” European national space agencies, representing Europe's investment in space for the future generation.

### **Sample School Lecture: The IGNIS Project**

Tancredi Siragusa provided a detailed presentation of a sample lecture from the 2<sup>nd</sup> Italian MVA Space Summer School, focusing on the IGNIS Project (Mattiello et al., 2024). This hands-on educational initiative aims to develop a 3U CubeSat,

integrating a Commercial Off-The-Shelf (COTS) thermal camera adapted to the space environment. The project blends educational objectives with Earth Observation goals, focusing on monitoring the Campi Flegrei volcanic area near Naples (a region that poses significant risks due to its volcanic activity). The concept of CubeSats was introduced during the lecture, emphasizing their significance and primary applications as miniaturized satellite technology. Following a general overview, the discussion shifted to the specifics of the IGNIS project, including its design and objectives. The session concluded by pointing out the relevance of CubeSats, showcasing their potential to support lunar missions in communication and scientific research. Participants collaborated on designing a CubeSat mission to address specific challenges in lunar exploration. The IGNIS Project exemplifies how educational programs can simulate real-world scenarios, providing students with practical skills and a deeper understanding of space missions.

## **Roundtable Discussion**

### ***Shaping the Future of the Moon Village Generation***

**T**he session transitioned to a dynamic roundtable discussion, where all panelists shared perspectives on the challenges and opportunities in advancing the Moon Village concept. Key points included aligning educational programs with the evolving needs of the space industry and adopting innovative approaches to enhance public engagement.

## **Q&A Session**

In the final segment, the panel opened the floor to audience questions. Among the questions addressed were:

- How can education initiatives like the MVA Space Summer School better prepare the next generation of space professionals to address the unique challenges of lunar exploration and settlement?
- What role do partnerships between industry, academia, and international organizations play in advancing the vision of the Moon Village, and how can collaboration across these sectors be enhanced?
- Considering the rapid advancements in space technologies like CubeSats and lunar exploration tools, what are the most critical skills young professionals should develop to contribute meaningfully to the Moon Village Generation?

The panelists provided thoughtful responses, offering insights on integrating education, collaboration, and technological skill development to achieve the Moon Village vision.

## **Closing Remarks**

**T**he moderator concluded the session with his closing remarks. He thanked all panelists and audience members for participating and underscored the importance of education, collaboration, and innovation in advancing the Moon Village vision.

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