1. Scope and Objectives
Kibo-ABC is a collaborative initiative of the Space Frontier Working Group (SFWG) of APRSAF that aims to promote utilization of the Japanese Experiment Module “Kibo.” This manned space laboratory plays a key role by providing unique research capabilities onboard the International Space Station. Kibo-ABC members can share these opportunities with participating space agencies, researchers, and engineers in the Asia-Pacific region. Since its establishment in 2012, the Kibo-ABC collaborative programs have promoted many educational, scientific, and technical activities, not only in the form of the annual Kibo-ABC Workshop but also through a series of programs such as Space Seeds for Asian Future (SSAF), Asian Try Zero-G (ATZG), and Kibo Robot Programming Challenge (Kibo-RPC). Kibo-RPC is an initiative mainly targeting university students within the framework of JAXA-NASA collaboration. The Kibo-ABC activities are conducted jointly with the Kibo-ABC members that have consented to the Terms of Reference (TOR) of Kibo-ABC.

2. Activities and Discussion Points
On November 29, 2021, Kibo-ABC will hold an online workshop prior to the Space Frontier Working Group session to be held on the following two days. We hope to develop multilevel cooperative relationships among Kibo-ABC participating agencies, and to deepen the participants’ understanding of current and future Kibo utilization opportunities.

The Kibo-ABC Workshop is open to everyone, members or non-members of Kibo-ABC, and offers rich topics consisting of reports on new plans and ongoing activities as follows:

- **Kibo Robot Programming Challenge Program < New program >:**
  Kibo Robot Programming Challenge (Kibo-RPC) is a new educational program that enables the next generation of scientists and engineers to get involved in the space sector by showcasing their innovative ideas to solve given problems on the ISS, gaining knowledge in science, technology, engineering, and mathematics. Featuring a JAXA robot “Int-Ball” and a NASA robot “Astrobee,” each group of participants will be challenged to create a program to operate these robots to solve various problems. The 1st Kibo-RPC was successfully conducted in 2020. The final round of the 2nd Kibo-RPC will be held in September 2021.

- **Space Seeds for Asian Future Program:**
  Through plant experiments both in Kibo and on Earth, this multilateral program “Space Seeds for Asian Future (SSAF)” aims to provide students and young researchers in the Asia-Pacific region with an opportunity to take part in space-related biology experiments and research. “Asian Herb in Space (AHiS)” is the third mission of this program proposed by Malaysia. The Malaysian Space Agency (MYSA) and JAXA have conducted feasibility studies and ground experiments from both scientific and technical perspectives with the aim of conducting plant growth experiments onboard Kibo. The Japanese astronaut Soichi Noguchi conducted a successful experiment in 2021. Many students in the Asia-Pacific region will enjoy this hands-on experiment mission.

The activities and future plans from each participating country/region will be reported and discussed at the
Workshop.

- **Asian Try Zero-G Program:**

In the Asian Try Zero-G (ATZG) program, Japanese astronauts onboard the ISS have conducted fundamental physics experiments proposed by young people in the Asia-Pacific region. The recent experiments of ATZG were successfully performed by the Japanese astronaut Norishige Kanai on Kibo in 2018. This educational program involves participation of students from many countries in the Asia-Pacific region. The plan for the next ATZG will be discussed among Kibo-ABC members at the Workshop.