

PARLIAMENT QUESTION: SPACE DOCKING TECHNOLOGY

Posted On: 23 MAR 2026 3:21PM by PIB Delhi

ISRO is studying two orbital docking experiments viz., SPADEX-2 replicating the docking in highly elliptical orbit meeting Chandrayaan-4 (Lunar Sample Return) mission and SPADEX-3 replicating docking in circular orbit as a precursor mission for docking in Bharatiya Space Station;

a. Proposed objectives of the upcoming docking mission under studies are:

- i. docking and undocking of two spacecraft in highly elliptical orbit and sample transfer between two modules; and
- ii. docking and undocking of two spacecraft in circular orbit between two pressurized modules using Bharatiya Docking System (BDS).

The SPADEX mission demonstrates complex technologies related to rendezvous and docking, which is critical for crewed mission in crew transfer, propellant/fluid/power transfer, etc. Validating such technologies in orbit, paves way for undertaking complex operations such as docking of Gaganyaan module to space stations like Bharatiya Antariksh Station (BAS), routine crew transfer, etc.

Scope exists for academic institutes and national laboratories in developing these technologies such as payload development, algorithm developments, plant experiment technologies etc.

Academic institutions participate in space missions, in general, through identified research proposals funded by the Department. Further academic institutes / national laboratories have also contributed to missions such as Aditya-L1 through payload realization. Scope exists for greater involvement of academic institutes for supporting the Indian space programmes.

This information was given by Union Minister of State (Independent Charge) for Science & Technology and Earth Sciences, and Minister of State in the Prime Minister's Office, Personnel, Public Grievances and Pensions, Atomic Energy and Space, Dr. Jitendra Singh, in a written reply in the Rajya Sabha today.

NKR/AK/AV

(Release ID: 2243896) Visitor Counter : 330

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