

20th IAA SYMPOSIUM ON VISIONS AND STRATEGIES FOR THE FUTURE (D4)  
Modern Day Space Elevators Entering Development (3)

Author: Mr. AMIT BHOYAR  
Politecnico di Torino, India, ahbhoyar@gmail.com

Mr. Zheng Deping  
Politecnico di Torino, Italy, s305124@studenti.polito.it

DESIGN A GREEN CORRIDOR SPACE ELEVATOR FOR CARGO TRANSPORT INTO SPACE  
WITH RE-USABILITY CAPABILITIES.

**Abstract**

Space operations are highly expensive in case of transport of any materialistic object or human into space. The International Space Station is not affordable to underdeveloped countries to enter into the ISS and perform experiments inside it. In order to maintain any space body, astronauts need to perform space operations where they use conventional rocket operation to enter into space which is very expensive in order to do mission planning, propellant etc. Such many more reasons encourage changing this convention method to go into the space and new Idea of space elevator come out with reusable capabilities, so it is cheaper transport system to the space. Space elevator developed. It contains two point segments, end point and surface point both are in geosynchronous mode where one end attached to earth surface inside the sea platform and the other end floated in the space with stable platform along with electric propulsion system in geosynchronous mode, both the end are attached to each other by a rope which made up of carbon fiber to provide the high strength to the rope and climber. The rope climber is attached to the rope by climber wheel and locks. It can be guided through the rope from earth surface to space platform, Space climbing elevator made of high grade carbon material and aluminum composite material to keep low weight factor, climber contain holo space for cargo as well as humans which need to be transported into the space segment. Climber contain motors which required power which is given by high coherent laser beam to the base of climber where photolytic cell are presents and receive power from laser photon up to certain altitude then it will receive power from solar array to charge the battery and run elevator system. Climber transport any material from earth to space segment which will be collected for next level or next segment. End point platform is in space segment with electric propulsion system and required power is achieved by solar farm and batteries, it consists of habitable chambers for experiment with all scientific instruments and cargo bay where all cargo stored and waste produce return to earth with the same elevator.

Keywords: Elevator, Reusability, Carbon Fibre Rope, Space Transport, Cargo Delivery, Geosynchronous Platform, Human Transport Vehicle, fixed platform, Rope Climber Robot.