



TEAM
a n t a r i k s h

STUDENT SPACE TECHNOLOGY TEAM
R V COLLEGE OF ENGINEERING®



VISION

To inspire young minds to take up challenging tasks in aerospace technology through interdisciplinary research and development

MISSION STATEMENT

- To develop a microbiological payload for ISRO's PSLV-4 initiative
- To design, develop and test a rocket for Spaceport America Cup, New Mexico USA.
- To increase the participation of the students of RV College of Engineering in Space Research and Technological development in India
- To participate in the research and development of innovative scientific payloads for Sounding Rockets and Nanosatellites
- To design, develop and test a series of indigenous model rockets with a goal to achieve self landing

ABOUT THE TEAM

Team Antariksh is an emerging space technology student club whose goal is to understand, disseminate and apply their engineering skills for innovation in the field of aerospace technology. The team has adopted highly multidisciplinary research projects undertaken by the the undergraduate students of RV College of Engineering[®]

The hundred member strong team is working on two research projects namely, a novel idea to perform microbiological experiment in space with the help of ISRO, and designing a Sounding Rocket with a scientific payload aiming to perform an experiment at higher altitudes.

The team has actively been involved in research for the past 5 years, and has numerous publications under its name. We are proud of the principles and work culture followed within the team, which resemble that of aerospace giants like ISRO and NASA.

2020



2021



2022



2023

INSIGHT

To design a model rocket with an apogee of **2000 ft.**

SA CUP 2022

Design a COTS based Solid Motor Rocket for **10,000 ft. AGL** with dual-deployment recovery

SA CUP 2023

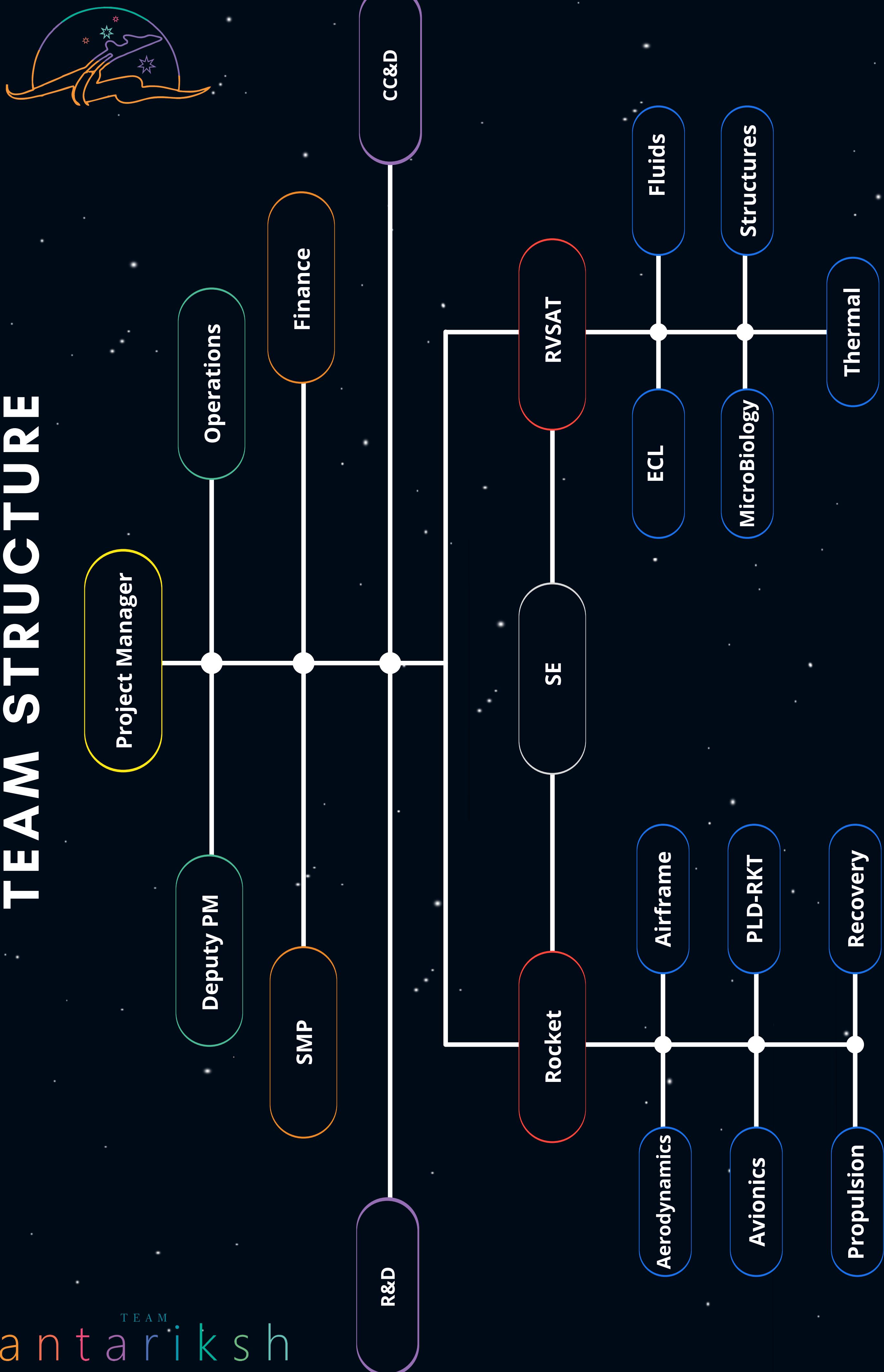
Design a student-researched Solid Propellant based Rocket Motor for **10,000 ft. AGL**



RVSAT-1

To design a microbiological payload for the analysis of the effects of microgravity on the growth of the bacteria

TEAM STRUCTURE



MILESTONES

2015

Inauguration of the team by Late Prof. Udupi Ramchandra Rao, Former Chairman, ISRO



2017

Approval of Baseline Design Review (BDR) of ISRO.

2017

First place in competition on "Space Missions" held at Indian Institute of Astrophysics



2017

Meeting with Indian Institute of Astrophysics (IIAP) for seeking technical assistance for the project

2017

Talk on India's successful Mars Orbiter Mission by Shri. Nitin Ghatpande, Former Group Director, Power System, URSC



2017

Meeting with FCCI, New Delhi as part of sponsorship opportunities for the team.

2018

Talk on "Trends in Satellite Technology and challenges faced by Students Satellites" by Prof. M Krishnaswamy , Student Satellite Division, IRS, ISRO



2019

Expanding our Horizon started a new project of manufacturing sounding rockets

2019

A visit to Airbus India facility situated in Bengaluru as a part of partnership and sponsorship opportunities for the team.



2020

Participation in the Human Spaceflight Conference hosted by ISRo-IAA-ASI.

2020

Acceptance of the RVSAT-1 PDR by ISRO



2020

Ret. NASA Scientist Dr. Ravi N Margasahayam addressed TA on his journey from RVCE to NASA.

2021

Submission of a promotional video of TA in Cranfield University's International Space Students workshop



TEAM

antariksh

RESOLV

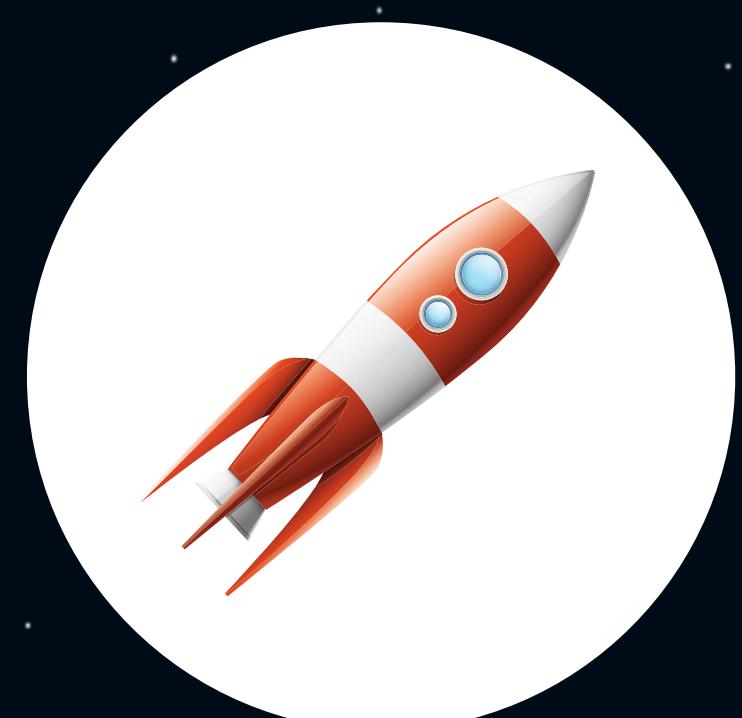
RECOVERABLE SUB-ORBITAL LAUNCH VEHICLE

Sounding rockets are one or the two stage solid propellant rockets used for probing the upper atmospheric regions and for space research. The weight of the payload in these rocket ranges from about 2 to 100 kg.

The ReSOLV-1 rocket is a step towards providing a platform for carrying out innovative research & experiments for upto 4 kg of payload capacity.

SPECIFICATIONS

ROCKET	ReSOLV
OBJECTIVE	Analyse vibrational effects on batteries
ORGANIZATION	R V College of Engineering
PAYOUT CAPACITY	3 U
DRY MASS	27 kg
ALTITUDE	10,000 ft AGL (Above Ground Level)
LAUNCH DATE	June, 2022



MISSION

- ReSOLV-1 will be carrying a payload to observe the effects of vibration and temperatures on batteries
- The experiment will pave way for various advanced and innovative methods for industrial testing of High Power Batteries, being used for similar applications.

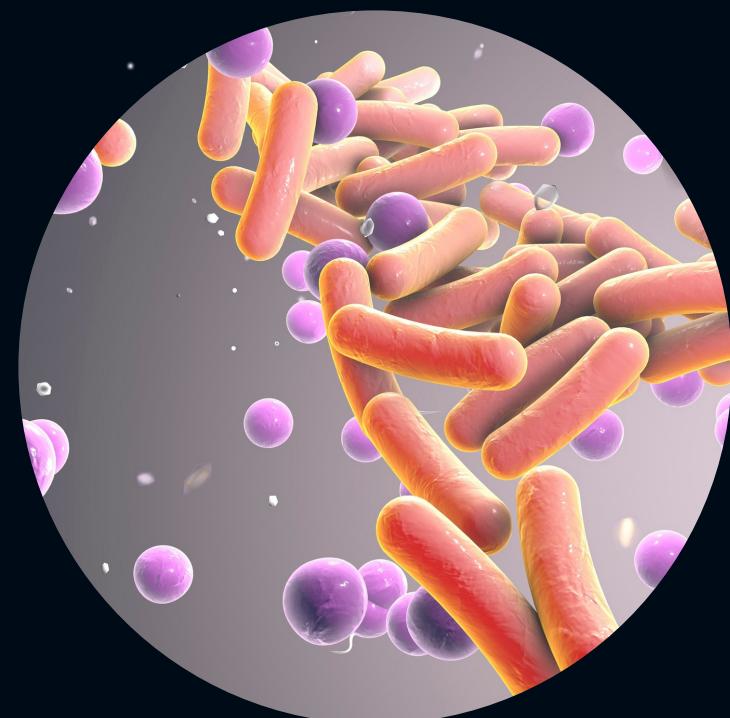
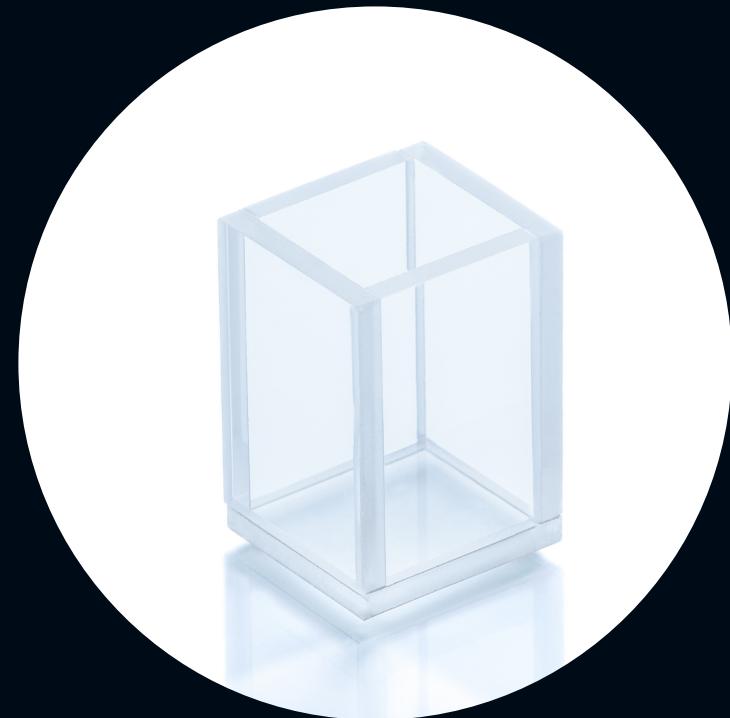


RVSAT

RVSAT-1 is a unique microbiological payload designed for ISRO's PS4 Orbital Platform. The objective of the payload is to perform the growth analysis on a microbe which is useful for analysing metabolic changes in humans in microgravity conditions.

It is first of its kind in India and attempted by the undergraduate students under the supervision of eminent faculty from RV College of Engineering

SPECIFICATIONS



SPACECRAFT	RVSAT-1
MISSION TYPE	System Design and Verification
LAUNCH TYPE	Polar Leo
ORGANIZATION	R V College of Engineering
LAUNCH AGENCY	ISRO
MASS	2.66 kg
DIMENSIONS	10 x 10 x 22.7 cm
ALTITUDE	580 km approx

UNIQUENESS OF PAYLOAD



The design of the mechanism and the setup is envisioned by the students under the supervision of the faculty of RVCE. The growth data collected in real-time will be sent to the ground station for further analysis, which could then be used by various space agencies planning for manned missions.

INSIGHT

MODEL ROCKETRY

Sounding Model rockets are small scale rockets designed to reach an apogee of upto 3000ft AGL with a mass not exceeding 2 kgs. They not only aim to provide an insight into the fundamentals of rocketry, but also help in validation and integrity of various other systems.

Insight-1 is the first iteration of our model rocket series with complete in-house manufacturing and SRAD motors. It is also being designed to use a Kalman filter on the sensor fusion data to predict the apogee of the rocket.

SPECIFICATIONS

ROCKET	INSIGHT-1
OBJECTIVE	To launch and recover a sub scale sounding rocket
ORGANIZATION	R V College of Engineering
PAYOUT CAPACITY	Nil
DRY MASS	2 kg
ALTITUDE	2000 ft AGL (Above Ground Level)
LAUNCH DATE	December, 2021

MISSION



- To integrate and launch an indigenously developed model rocket to reach an apogee of 2000 feet.
- To use a Kalman filter on the sensor fusion data of the accelerometer in the IMU and the altimeter to predict the apogee achieved.

ACHIEVEMENTS

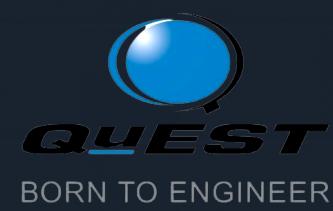
ICSS



Winners in student competition of design and implementation of space projects at International conference in Small Satellites, Hyderabad

2019

**QuEST
INGENIUM**



First Runners Up in Quest Ingenium, a platform for presentation of Engineering Projects. Voted as Best Project by QuEST Employees.

2018

ISRO

WORLD SPACE WEEK



Bagged all six prizes in World Space Week conducted at URSC. Opportunity to tour ISRO-URSC facility for a day

2018

IIA



Winner of National Level Competition on "Space Missions" held at Indian Institute of Astrophysics, Bengaluru

2018

RESEARCH ACCOLADES

10 PAPERS	02 PAPERS	01 PAPER	01 PAPER	09 PAPERS
 <p>Ten paper publications at 70th International Astronautical Congress, 2019, Washington DC, USA</p>	 <p>Two paper publications Satellite Technology Day 2018, URSC-ISRO, Bengaluru, India</p>	 <p>Two paper publication at AIDAA, 2019 International Congres, Rome, Italy</p>	 <p>Paper publication at (IEEE) International conference for convergence in technology, Mangalore, India</p>	 <p>9 paper publications at 71st International Astronautical Congress, 2020, The CyberSpace Edition</p>
01 PAPER	03 PAPERS	01 PAPER	02 PAPERS	
 <p>Paper publication at IEEE Aerospace conference, 2019, Washington DC, USA</p>	 <p>Three paper publications at 69th International Astronautical Congress, 2018, Bremen, Germany</p>	 <p>Paper publication at International conference on small satellites 2019, Hyderabad, India</p>	 <p>Two paper publications at Alchemist Belagavi</p>	
01 POSTER	02 PAPERS	03 PAPERS	01 PAPER	02 PAPERS
 <p>Poster publication at International conference on small satellites 2019, Hyderabad, India</p>	IJNTSE <p>One conference paper and two journal publications at IJNTSE, 2018, India</p>	 <p>Three paper publications at 2nd ICMAE, 2018, INDORE, India</p>	 <p>Paper publication at IEEE Aerospace and Electronica AeroConf, 2020 BigSky, Montana</p>	 <p>2 paper publications at IEEE-Aeroconf 2021</p>

TOTAL COUNT

39

OUR PARTNERS



TEAM
a n t a r i k s h



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