Ongoing Projects under Regional Academic Centre for Space

(As of April 2023)

MNIT Jaipur, Jaipur

Sl. No.	Title of the Project
1.	Charge pump PLL frequency synthesizer design
2.	The coating of CuNiFeCrMo Graphene oxide Nano composites on CFRP –Carbon Fiber Reinforced Plastics /Composites to improve Thermal Conductivity & Electrical Conductivity properties of CFRP –Carbon Fibre Reinforced Plastic /Composites
3.	Nanostructured carbon Electrodes for High-Voltage Hybrid Ion Super capacitors
4.	Development of Novel CoFe2O4/CaCu3Ti4O12/Polymer Composites for EMI attenuation
5.	Development of high entropy alloy components for aerospace applications
6.	Detection of trace elements using micro-sensor array in the Human Spaceflight
7.	ICESat-2 based Ground photons retrieval in urban areas by using deep learning algorithms
8.	Development of ultrahigh sub micron level measurement facility for coefficient of thermal expansion for dimensionally stable composite structures
9.	Performance exploration of LTMO and vertically aligned MWCNT on graphene material for efficient and sustainable Na-Ion batteries
10.	Developing a user-friendly Chatbot system as an interface for information extraction in Natural language
11.	Simulation Analysis and Implementation of Soft Decision Forward Error Correction Codes for High Speed Free-Space/Satellite Optical Communication
12.	Onboard spectral preprocessing for multispectral image compression using FPGA
13.	Design and Demonstration of Empty and Foam Filled Honeycomb Structures for Energy Absorption during Crash/Impact

Gauhati University, Guwahati

Sl. No.	Title of the Project
1.	Synthesis of spinel structured lithium based soft ferrimagnets for application in satellite communication
2.	Experimental studies on breakdown of gases in a DC Glow Discharge and Dielectric Barrier discharge devices
3.	Graphene based conductive ink for flexible and wearable printable electronics

NITK, Surathkal

Sl. No.	Title of the Project
1.	Design, development of Multi-harmonics Turned GaN HEMT Power Amplifier over Broadband
2.	Programmable photonic microwave signal generation using on-chip spectral shaper for satellite communication
3.	Design and development of Multi Input/Multi Output Power Converter
4.	Customized Reconfigurable Platform for Image/Video Compression based on Deep Learning Algorithms for Hyperspectral Images
5.	Realisation of Al Alloy AA2219/AA2014 Integrally stiffened cylindrical structure through flow forming
6.	Laser Based Additive based superalloy components. Advancing repair and enhancement

IIT (BHU) Varanasi

Sl. No.	Title of the Project
1.	Development of variable data rate CCSDS compliant Direct Digital Demodulator
2.	Development of graphene/CNT FET based sensors for space applications
3.	Design and development of reconfigurable reflect array antenna at X-band
4.	Numerical Modeling and optimisation of isothermal chemical vapour infiltration (CVI) process for C/SiC composites using MTS/H2 mixture

Sl. No.	Title of the Project
5.	Development of microwave scattering algorithms for retrieval of crop biophysical parameters and soil moisture using polarimetric SAR satellite data
6.	Novel Observations and Modeling of the Heating and Dynamical Plasma Processes in the Localised Solar Atmosphere
7.	Metasurface-based various components for applications in microwave and beyond
8.	Development of algorithms for water quality monitoring using ground instrumentation and optical sensors onboard Unmanned Airborne Vehicle and Satellite Data
9.	Autonomic neural performance index estimation using cardiovascular, respiratory and behavioral recordings
10.	Development of wearable internet of medical things for continuous health monitoring of astronauts

NIT Kurukshetra

Sl. No.	Title of the Project
1.	Key management for secure multicast applications in space terrestrial integrated network
2.	Development of a deep learning enabled algorithm for automatic modulation recognition in blind RF environment

NIT Patna

Sl. No.	Title of the Project
1.	Development of Space Qualified Vapor Chamber
2.	Channel coding for satellite communication
3.	Programmable Holographic Metasurface for Beam Steering Applications