



**The Institute of Electrical and Electronics Engineers
(IEEE)
Galveston Bay Section
Joint Societies Chapters**



ONLINE Virtual Meeting

Saturday, March 27th, 2021 10:00 AM- 11:00 AM US-CDT(Houston)

TOPIC: "India and It's GNSS Paradigm, a step towards Self sustenance(Atmanirbharata)".

Speaker: Dr Surendra Pal, Former Vice Chancellor- Defence Institute of Advanced Technology- Pune

DRDO Dr. D.S Kothari Chair DG ECS Office Bangalore, Prof. Satish Dhawan Professor, Senior Adviser- Satellite Navigation(ISRO)

Distinguished Scientist, Associate Director, Chairman GAGAN -PMB & Prog.Director Sat.-Navigation- URSC(ISAC)-ISRO] , IEEE Fellow

Presentation: In the modern era, NAVCOM (Navigation &Communication) are two important parameters of the world. India has been quite active in both the spheres of technology ,particularly related to space segment. India maintains its own communication satellite constellation INSAT and GSAT series of satellites (Since early eighties) and also its Space based wide Area Augmentation System GAGAN(As per ICAO requirements) and its own Regional Navigation Satellite System (IRNSS- which has been dedicated to the nation by the Indian Prime Minister as NavIC.

The talk deals about the Indian Space Based Navigation Systems, consisting of GAGAN and NavIC along with the ground segment ,its applications and the system performance parameters. Both the systems are operational and India/ISRO has joined the club of countries that maintain their own independent constellations.

Speaker: Dr. Surendra Pal, a researcher and an academican of international repute having more than 50 years of experience in the field of Antennas, Space Communication and Satellite Navigation, is the Former: Vice Chancellor of Defence Institute of Advanced Technology (DIAT), Pune, President of IETE (2012-2014), Distinguished Scientist, founder of India's Satellite Navigation Programme (NAVIC and GAGAN) -, Prof. Satish Dhawan Professor, Senior Adviser, Satellite Navigation (ISRO) . He was consultant to UN/ITU and NTU Singapore on Satellite Communication.

He was responsible for initiating projects on Antennas, Space communication, Microwaves and Satellite navigation activities at ISRO Satellite Centre (ISAC) from the inception in 1971. The journey started with Aryabhata India's first satellite and went on till Chandrayaan-I. The space communication systems designed and developed by him for TT&C and high bit rate data transmission ,in S,C,X ,Ku and Ka frequency bands were used in India's various satellite and interplanetary missions. The designs are still used and also worked for India's Mars Orbiter mission. He led the team, which designed (RF) and tested the Indian ISDN 32-meter diameter antenna system .This is being used from tracking Mars Orbiter now Chandrayaan-II .

Dr. Pal was the founder Programme Director of Indian Satellite Navigation Programme GAGAN and NAVIC. The NAVIC (IRNSS) constellation is a unique constellation at GEO orbit for Regional Navigation , providing better position and timing, stand alone, for accuracies, for navigation. GAGAN is certified and handed over to Air Port Authority of India. For NAVIC indian defence and security agencies will be the main user and defences forces will be independent of GPS and GLONASS Uses. It is a great development for the country.

He was consultant to ITU-Geneva (International Telecom Union) for defining Rural African Satellite Communication and on the GNSS panel of UN Office for Outer Space (Vienna), where he participated and chaired several international meetings. He had developed Mobile Satellite Antenna for ICO/INMARSAT, UK and he was consultant to NTU-Singapore on X-SAT. He was also Co-Study Director for LEO Constellation of INMARSAT for satellite mobile communication.

As a Vice chancellor of Defence Institute of Advanced Technology, he started various courses ,relevant to defence services, and established various state of technology laboratories . DIAT has improved a lot during his Vice chancellorship and was put at 63rd rank by NIRF. Some of the laboratories established by him are better than the similar once in many IITs.

Dr. Pal is a fellow of several National and International professional Societies. He is a Distinguished Fellow of IETE, Fellow of IEEE (USA), Indian National Academy of Engineers (INAE), National Academy of Sciences (NASc), Fellow IET (UK), MIAA (Paris), FVEDA, Ch. Eng (UK), FATMS (I), to name a few. From 2012 to 2014 he was President of Institution of Electronics and Telecommunication Engineers India, where he worked for increasing various technical activities in North East States of India. Dr. Pal has received more than two dozen National and International Awards, which includes Judith Resnik Award from IEEE. He is the first person to get the award from East of France. Dr. Pal was an IEEE Distinguished Lecturer for Aerospace and Electronics Systems Society. He also visited under IEEE-DLT Programme several universities in USA, UK, South Africa, Australia, Malaysia & Singapore. He is a recipient of BITS Pilani Distinguished Alumni Award. Dr. Pal's expertise is Satellite Communication, RF Microwave, Digital Communication, Radars, Antennas and Global Navigation Satellite Systems.

Registration is required by Thursday March 25th 2021 5:00 PM Houston time to attend.

**FOR REGISTRATION GO TO <http://events.vtools.ieee.org/m/265929>
Log-in Information will be provided to all registrants on Friday March 26th.**