

Curriculum Vitae of DHARMENDRA SINGH

Present Position and Postal Address:

Professor in Department of Electronics and Communication
Engineering

Coordinator, RailTel-IITR Center of Excellence in
Telecommunication

Microwave Imaging and Space Technology Application Lab

Indian Institute of Technology Roorkee

Roorkee-247667, Uttarakhand, India

e-mail: dharmfec@gmail.com, dharmfec@iitr.ac.in

Phone: (+91) 01332-285351 (R), (+91)01332285695 (Off)

Fax: (+91) 01332-273560

Place of Birth:

Varanasi (U.P), INDIA

Nationality:

Indian

Sex:

Male

Marital Status:

Married

Educational Qualifications:

- Ph.D from Dept. of Electronics Engineering, Institute of Technology BHU (now IIT (BHU), Varanasi, India

Academic / Research Experience/Employment:

22+ years

Area of Specialization:

Wave Propagation, Optical and Microwave Remote Sensing, Polarimetry and Interferometric applications, Image Fusion, Image Processing/Image Analysis, ICT, IoT, Cloud Based Solution, Microwave Imaging, Through Wall Imaging, Ground Penetrating Radar, Terahertz Imaging, Radar Absorbing Materials, Stealth Application, Radar Cross Section Reduction

Country Visited:

USA, Japan, Taiwan, France, Brazil, Germany, China, Spain, Switzerland, Korea, Canada, Singapore, Australia, SriLanka

Honors/Awards and Fellowship received:

- Starr Performer for year 2004-05 from IIT Roorkee, India for teaching and research.
- Indo-French Center for Advanced Mathematics Fellowship-2014-2017.
- INSA-DFG (Germany) Visiting Professor, 2011 (to visit Germany).
- MERIT Visiting Professor Fellowship by European Union, 2009-2010.
- German Academic Research Visiting Associate Award, Germany-2008.
- Chinese Academy of Sciences, Visiting Fellow Award, China, 2006.
- French Govt. Fellowship-2004. To visit “Institute for National Research in Informatics and Automatique (INRIA)”, Rocquencourt, France, 2004-2005.
- University Corporation of Atmospheric Research Fellowship, USA, 2002.
- European Research Computer Informatics & Mathematics Fellowship, France, 2001-2002.
- Japan Government (Monbusho) Fellowship, Japan, 1999-2000.
- Japan Telecommunication Foundation Award for Remote Sensing, 2000.
- Visiting Associate Award for remote sensing by University Grants Commission, New Delhi, India, 2001.
- Visiting Associate Award for remote sensing by University Grants Commission, New Delhi, India, 1996.

Collaborations:**National:**

Space Application Center, Ahmedabad; Defense Electronics and Application Lab, DRDO Lab, Dehradun; Snow Avalanche and Study Estt., DRDO Lab, Chandigarh; Central Mining And Fire Research Institute, (CSIR Lab), Dhanbad; Indian Meteorological Department, Delhi; IIT Bombay; IT, BHU;

International:

Karlsruhe University, Germany; Chemnitz University, Germany; Center of Remote Sensing, Florida, USA; DLR, Germany; Niigata University, Japan; INRIA, France; IRSA, Beijing, China; Tsinghua University, China; UPC, Barcelona, Spain; Rio de Janeiro University, Brazil.

Professional Affiliations:

- Senior member of IEEE,
- Life member of Indian Society of Remote Sensing

Number of Research Publications (National/International Journals and Conferences)

250 +

Number of Books Authors/Edited

- Chapter in a Book entitled “**Advances in Intelligent Informatics**” published by Springer, ISBN: 978-3-319-11217-6, ISSN: 2194-5365 (electronic)
- Writing a book on Radar and its Polarimetric Application
- Developed a Pedagogy Project on "Engineering Electromagnetics"

Review

- Reviewed a book entitled “Engineering Electromagnetics” by Hayt and Buck, TMH publication. (2010).

Number of Patents Granted/applied for: 01**(a) Patent:**

Development of Nano Composite Microwave Absorbing Paint in the Frequency range 8 to 18 GHz. Patent filed through Instrument wing PXE DRDO Collaboration 2012. App. No. :0553/DEL/2013, dated Feb 26, 2013. (Association with Prof. Vijaya Agarawal)

(b) Product Developed:

- Developed prototype of Hand Held Cavity Detector for Army Technology Board
- Soil Moisture Monitoring System" for India Meteorological Department, Delhi, India
- Satellite Based Agriculture Information System (www.aisiitr.in/modis/)

12. Ph. D/ Master Dissertation Supervised

(a) Ph. D: 16 Awarded and 12 are in progress

(b) Post-Graduation: 53 Awarded and 06 are in progress

13. Administrative Responsibilities:

(a) Institute Level:

- **Coordinator**, RailTel- IIT Roorkee Center of Excellence in Telecommunication, July 2013 to till now.
- **Head**, Institute Computer Center from April 2014 to Jan., 2015.
- **Head**, Information Super Highway Center, Jan 11 to Jan 2015.
- Chief Warden Ganga Bhawan, from Jan 2011- March 2013.
- Senate nominee for Institute Academic Program Committee
- Member of Institute Research Committee
- Member of Institute Vigilance Committee
- Co-Coordinator for Cognizance-08 & 09 (National Level Technical Festival)
- O. S. D. Security from Jan 2008 to May 2009.
- Staff Advisor Basketball since 2006 to 2012

(b) Departmental Level:

- Chairman, Department Purchase Committee, Oct 2015 to till now
- Chairman, Department Research Committee, July 2013 to Oct 2015.
- Officer In charge (O. C), Administration, March 2013 to June 2015
- O.C. Training and Placement from March 2011 to Feb 2013.
- O.C. Electronics Lab., from March 2011 to March 2013
- O.C Library since Feb 2009 to Feb. 2011
- O.C. Project since Feb 2009 to Feb. 2011 now
- O.C Training & Placement from Feb07 to Jan09
- O. C Maintenance from Feb 05 to June 08

Principal Investigators in Projects:

- Application of Drone with Satellite Data for Precision Agriculture Monitoring and Drone Assisted Surveillance and Diagnosis for Biotic and Abiotic Stresses in Sugarcane, sponsored by DRDO, **2016-2018**.
- Development of an adaptive algorithm for crop parameters retrieval by utilizing polarimetric data for regional conservation purposes, Japan Aerospace Exploration Agency (JAXA), **Japan (2016-2019)**.
- Study and Development of Multi-Layer and Frequency Selective Surfaces for Application of Radar Wave Absorption, sponsored by DRDO, **2013-2016**.
- Agriculture Information System for ICT, sponsored by RailTel, Delhi, **2014-2017**.
- Crop Identification with PALSAR data” Japan Aerospace Exploration Agency (JAXA), **Japan (2013-2017)**.
- Critical Analysis of Min-SAR data for Moon Surface Classification, sponsored by Space Application Center, Ahmedabad, **India (2010-2013)**.
- Development of Polarimetric Tools for Radar Image Satellite, Space Application Center, Ahmedabad, **India (2010-2013)**.
- SPACFIRE - Application of INSAT -3D Data for Sub-surface Fire Detection and Monitoring, Space Application Center, Ahmedabad, **India (2011-2014)**.
- Study of Altimetric Measurements Over Land: A Special Application of Altimeter for Water flow/Water Logging Observation, Space Application Center, Ahmedabad, India **(2011-2014)**.
- An Advanced Application of Radar Polarimetry for Land cover/Crop Classification” Japan Aerospace Exploration Agency (JAXA), **Japan (2010-2011)**.
- Computational and Fusion Approach to Interpret Lunar Polar Region with Radar and Optical Remote Sensing Data, sponsored by PRL-ISRO (**Mission Moon-CHANDRAYAN**).
- An Advancement of Space Technology to Provide Valuable Information for Development of Agriculture Information System, sponsored by Department of Science and Technology and Japan Science and Technology, **Japan**.
- Development of Ground Penetrating Radar for Cavity/Void Detection, sponsored by Army Technology Board.
- Satellite data-based fusion approach to develop soil moisture monitoring system” Indian Meteorological Department, Delhi.
- Radar Approach to Predict Soil Erosion for Disaster Management” **MHRD, 2005-2008**.
- Microwave Remote Sensing for Buried Object Detection and its Shape Recognition, sponsored by **DRDO, India, 2005- 2008**.

Consultancy Project:

- Development of Ground Penetrating Radar, Army Technology Board, Pune, **2010-2014**.
- Through Wall Imaging, LRDE (DRDO), Bangalore, **2010-2011**.
- Analytical and Simulation Studies for TWI System, DEAL, DRDO Lab, Dehradun, **2008**.

Reviewer for the Journals:

- IEEE Trans. on Geosciences and Remote Sensing
- International Journal of Remote Sensing and Environment
- International Journal of Remote Sensing
- Advances in Space Research, Elsevier, U.K
- Journal of Arid Environments, Elsevier, U.K
- Indian Journal of Remote Sensing, India

Organized Workshop/Seminar/Conference:

- Co-Chair, ICIIS-2015, Sri Lanka
- Convener, National Conference RAECE-2015, IIT Roorkee.
- Organizing Secretary for VEDA, Sept. 2013, IIT Roorkee
- Organizing Secretary for National Seminar on Radar Remote Sensing, 25th -26th Sept. 09, IIT Roorkee
- Organizing member for UCOST-08, IIT Roorkee
- Organizing Member for ICON-2008, IIT Roorkee
- Organizing Member for NADAP-08, IIT Roorkee
- Organizing Secretary for EFEA Workshop, April, 2006.
- Organizing Secretary for IIT-Roorkee-ALCATEL, Broad Band Technologies Workshop-Dec. 2005.

Students Achievements

- Mr. Bambam Kr, (Ph. D student) received Young Scientist Award-2016 by Uttarakhand Government, India.
- Mr. Tasneem, (Ph. D student) received Young Scientist Award-2015 by Uttarakhand Government, India.
- Ms. Smriti Agrawal (Ph. D student) received project under WOS scheme of DST, India, 2011.
- Mr. Anchit et al (B. Tech Students) received project from IEEE under AIYEHUM 2011.
- Mr Anchit et al awarded (B. Tech Students) SURA project 2011.
- Mr. Harish (Ph. D student) received Young Scientist Award-2009 by Uttarancal Government, India.
- Mr. Abhay Gaikawad, (Ph. D student) received Young Scientist Award-2009 by Uttarancal Government, India.
- Mr. T. Pant (Ph. D student) received best paper award in the *Indian Society of Remote Sensing Symposium ISRS 09*, 17-19 September, 2009, Nagpur, India.
- Ms. G. Mittal (Ph. D student) received one of the best paper award in the *ICRS (International conference on radio science)* Jodhpur, India 27 -29 February, 2008.
- Ms. V. Chamundesswari (Ph. D. Student) received Google's Women Award in year 2007.
- Mr. K. C. Tiwari (Ph. D student) received best paper award in the *ICRS (International conference on radio science)* Jodhpur, 2006.
- Mr. Akhilesh Chander received second prize in Summer Under Graduate Research Program-2008 from IIT Roorkee.
- Mr. Hitesh Sharma received third prize in Summer Under Graduate Research Program-2007 from IIT Roorkee.

Research Interest with important finding/developments of some project/research

- **Microwave/Millimeter Wave/THz Imaging & Microwave Sensor**
 - Through Wall Imaging
 - Ground Penetrating Radar
 - Early Breast Cancer Detection
 - Medical Imaging
 - Non-invasive hidden targets detection and imaging with mm and THz Wave
 - Microwave sensors
- **Information and Communication Technology Application with Cloud Application**
 - Agriculture Information System
 - Land Cover Monitoring
 - Web based solution
 - Mobile based solution
 - Cloud application
- **Satellite Image Processing and Analysis (Microwave and Optical Satellite Images)**
 - Synthetic Aperture Radar
 - Radar Polarimetry
 - Interferometry
 - Optical image analysis
- **Image Processing/Analysis**
 - Image fusion/Data Fusion
 - Resolution Enhancement
 - Adaptive Thresholding and classification
- **Stealth Technology**
 - Radar Absorbing Materials
 - Frequency Selective Surfaces
 - Multi-layering
 - Radar Cross section Reduction
 - Electromagnetic Modelling
- **Electromagnetic field (EMF) radiation**
 - Radiation Study and modeling
 - Study on Human Head

Major Projects

- **Development of Hand Held Cavity Detector (Ground Penetrating Radar) – Sponsored By Army Technology Board, Pune, India**

The Cavity/Caches detector is a project to assist troops/govt. agencies to help for identification of caches/voids in the ground which act as hideouts. The developed device has a capability to detect and classify various targets till one meter depth. The principle involved is similar to that employed in ground penetrating radars wherein use of electromagnetic waves of a particular frequency is employed to penetrate the surface and the reflected wave form received is analysed to provide an image.

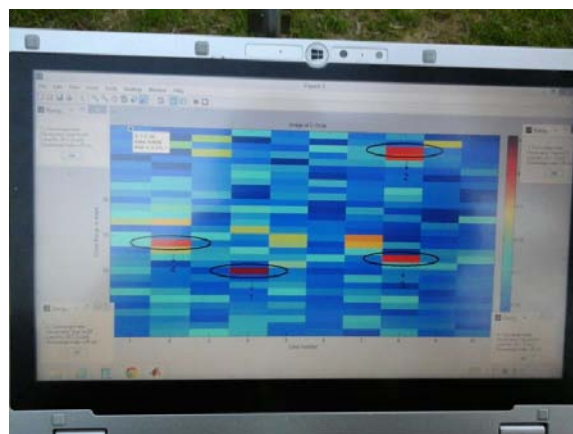
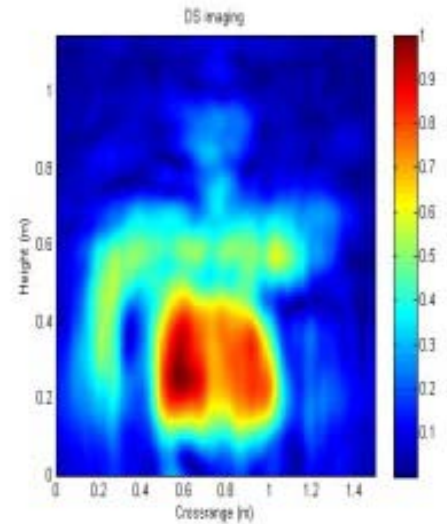


Fig.: Developed Hand Held cavity Detector (Ground Penetrating Radar) with the type of display of results

- **Through Wall Imaging System- Sponsored By LRDE, DRDO- Bangalore, India**

Developed suitable signal and Image processing algorithm for simulation of the process of image formation to improve the signal to interference ratio (interferences include indoor multipath, coupling noise, thermal noise and clutter reflections) for detection and identification of the different objects (human being, metallic guns etc.) behind the wall taking into consideration wall thickness, variations of transmission and reflection coefficients of the wall .



Results of TWI Imaging System

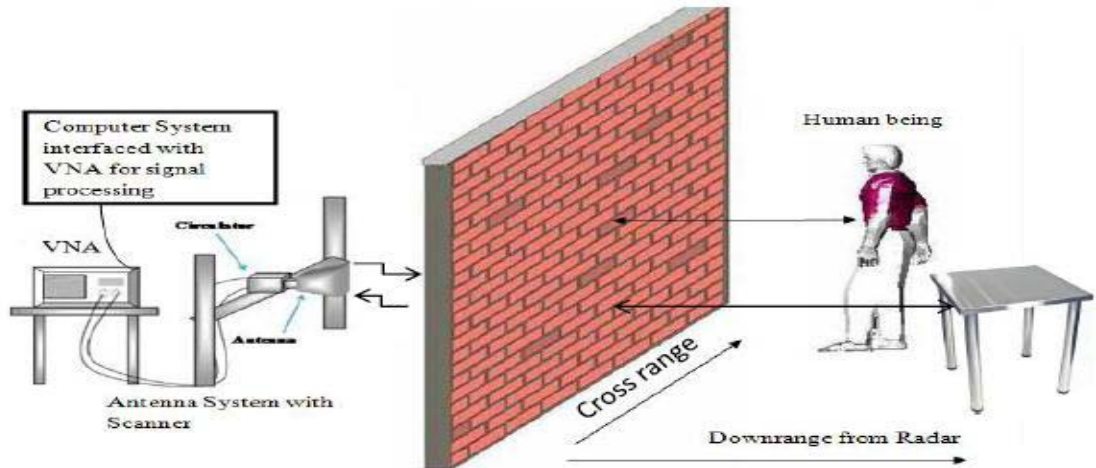


Fig: Ingeniously developed TWI system

- **Soil Moisture Monitoring with Satellite Images**

Monitoring soil moisture with satellite data on regional and global scale is of paramount importance for understanding and protecting environment as well as for natural resource management. Thus, it is necessary to develop a satellite based system for monitoring and predicting the soil moisture. The project has developed three main components: 1) “Application of Radar data for estimating the soil moisture and 2) minimize the effect of roughness and vegetation while retrieving soil moisture. (3) Specification to develop the “automatic soil moisture monitoring system” with satellite data. Since **satellite (radar) sensors** offer a potential means of determining the spatial distribution of various types of landscape and soil condition (i.e., moisture and roughness) over large areas within a short time and reasonable cost. An automated system has been developed for Radar Data to retrieve the soil moisture with Synthetic Aperture Radar data.

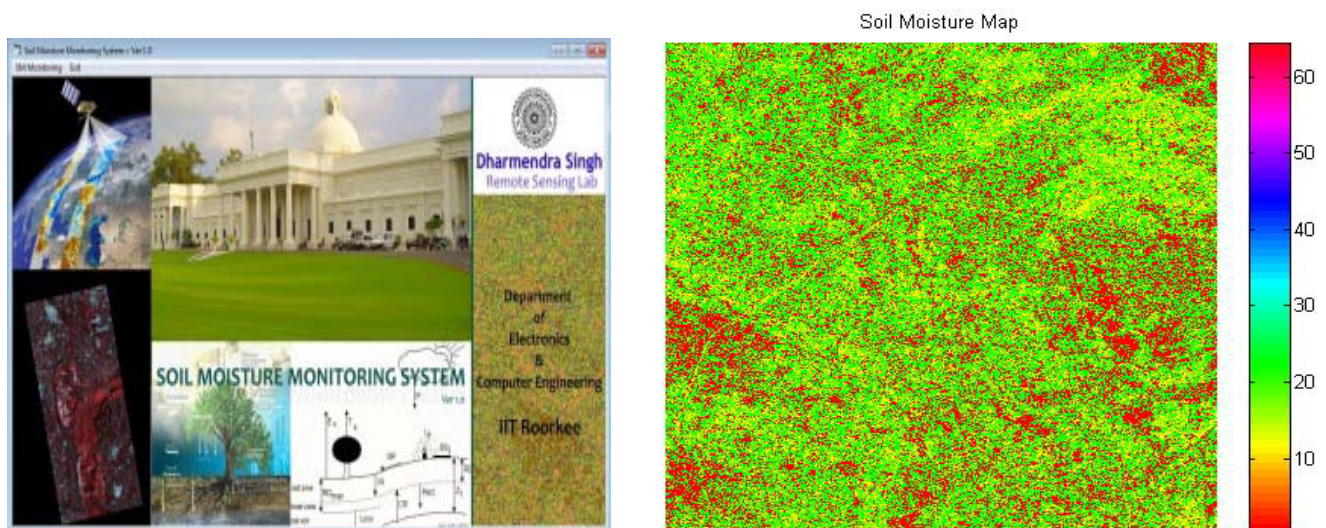


Fig.: Developed Soil Moisture Retrieval System with generated soil moisture map of Roorkee region (April 9, 2011), India (Data Used: PALSAR-1, provided by JAXA, Japan)

- **Agriculture Information System for ICT**

Basically this project deals with two major objectives in which first objective is to use of satellite data for development of agriculture information system and second objective is to develop a system for real-time data capture via imaging of diseased plants in the field, on the field disease diagnosis and transmission of data for use by agricultural administrators to support operational decisions such as pesticide application. Accurate and timely information of agricultural field is very much required, as it can be used to evolve strategies for sustainable management of agricultural resources. Nowadays, satellite data, computer advances and communication technology may offer great scope for efficient planning and monitoring of agricultural resources in more efficient ways. Monitoring of agricultural system generally depends upon actual information of cultivated area, crop type, crop condition and region wise knowledge of agricultural system and effect on meteorological conditions. To provide these valuable information to various users like, satellite data may play a major role. Another important challenge is the definition of a cost effective solution, so end users like farmers can use these information with minimum cost. In this project we propose to develop methods for fusing the information of various satellite data in order to monitor crop area, crop type, crop health condition and soil moisture and this information can be timely send to end users by Information Communication Technology. The ICT system will consist of agricultural statistics for providing information about trends and changes in crops and meteorological conditions. A WEB/SMS information diffusion system will be experimented. (Please visit URL: www.aisiitr.in/modis/modis/)

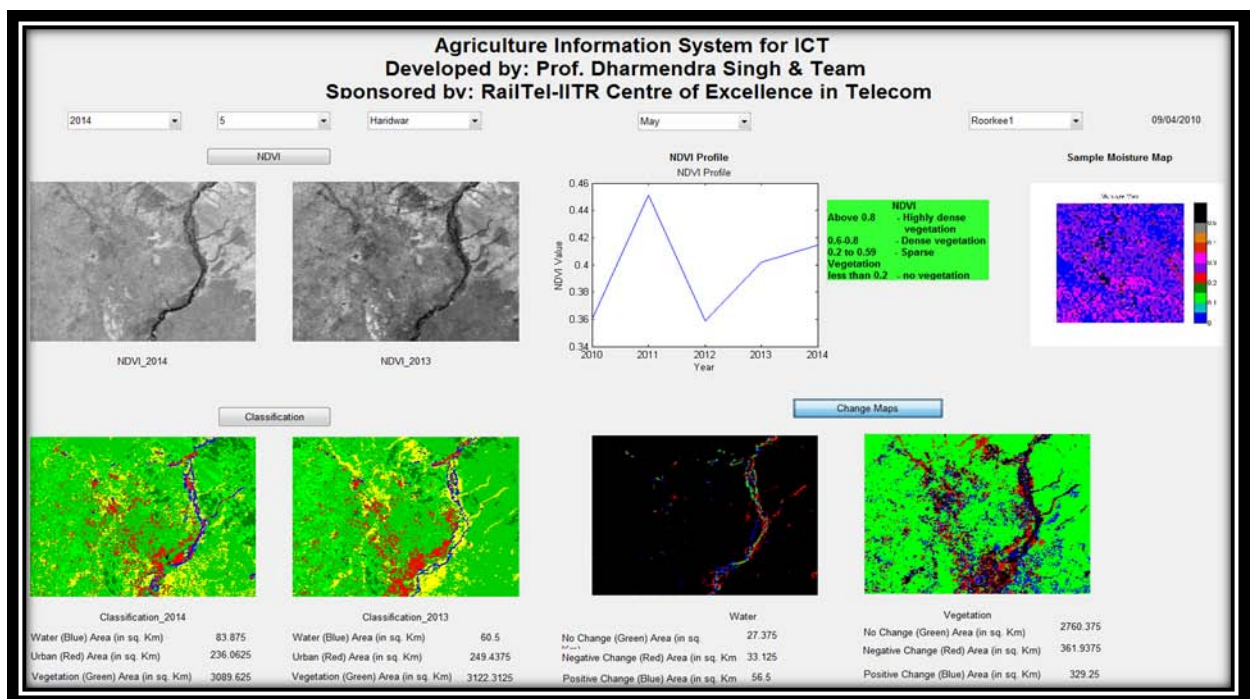


Fig: Developed Agriculture Information System for ICT

- **Radar Absorbing Materials with Frequency Selective Surfaces**

Technology on the microwave absorbers in GHz frequency band is a great topic in the military field to reduce the radar cross section (RCS), as well as in the telecommunication engineering fields. The microwave absorber is a specially designed material to suppress the reflected electromagnetic energy incident on the surface of the absorber by dissipating the magnetic and/or electrical fields of the wave into heat and although most absorbers do not dissipate enough energy to become even detectably warm when illuminated by a radar, this is nevertheless the mechanism by which they operate. Underlying the operation of RAM is the fact that substances either exist or can be fabricated whose indices of refraction are complex numbers. In the index of refraction which includes magnetic as well as electric effects, the imaginary part accounts for loss. At microwave frequencies, the loss is due to the finite conductivity of the material, as well as energy expended by molecules in attempting to follow the oscillating fields of an impressed wave. It is customary to lump the effects of all loss mechanisms into the permittivity and permeability of the material, both of which can be complex. . It is important to explore the some computational and electromagnetic techniques by which RAM as well as structure of the FSS can be optimized for a broad band of frequency spectrum. A technology for the optimizing the various thickness of multilayer is developed that will be avoiding the commonly used method of trial and error. An electromagnetic based approach is developed/under developed to achieve the proper FSS for different frequencies.

- **Obtained -10 dB RL bandwidth approx. 4.2 GHz (From 8 GHz to 12.2 GHz) with coating thickness 1.4 mm**



Fig. Experimental measurement setup (a) transmission-reflection waveguide setup with measured sample and, (b) ATD setup with fractal FSS embedded sample.

- **Possibility of Water Ice on Lunar Surface- Chandryaan-1-**

The major components of the project include; polarimetric application of radar data for interpreting classification of moon surface on the basis of roughness and dielectric properties. The general objectives were as following: - Research on **classification of moon surface** and possibility of existence of water ice on lunar surface. Possibility of water ice existence on lunar surface has been investigated by using polarimetric approach with Fractal application on Chandrayaan-1 data.

Fig. S₁ image representing selected ROIs on the floor of Rozhdestvenskiy crater Using Mini-SAR1 data of Chandrayaan -1

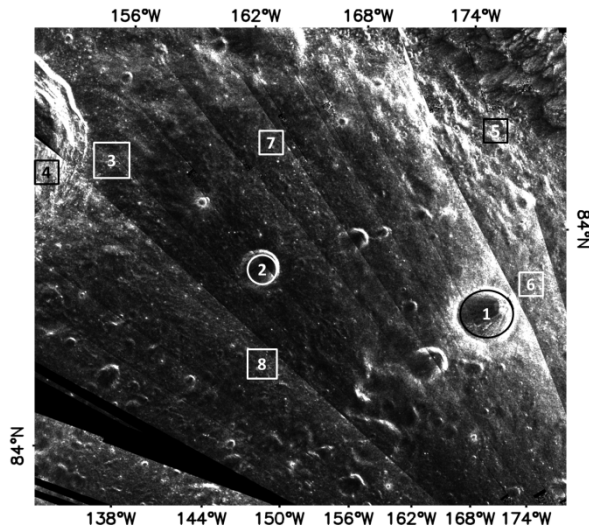


Table- Results for possibility of water ice on Lunar Surface

ROI	Pixel % : Possibility of dielectric mixing due to water ice
1	Yes
2	Yes
3	Negligible
4	Negligible
5	Negligible
6	Negligible
7	No
8	Negligible

- **Millimeter Wave Imaging**

MMW imaging is one of the fascinating and rapidly expanding area; for object identification for security applications and for quality monitoring for industrial applications. Henceforth, critical investigation of digital image processing techniques in context to MMW imaging is currently becoming a new focused area of research. Various research works are carried out and going on for stand-off target detection and identification using different imaging techniques. An efficient MMW imaging methodology has been developed for accurate, non-invasive target detection, identification (especially crack detection) and material classification.

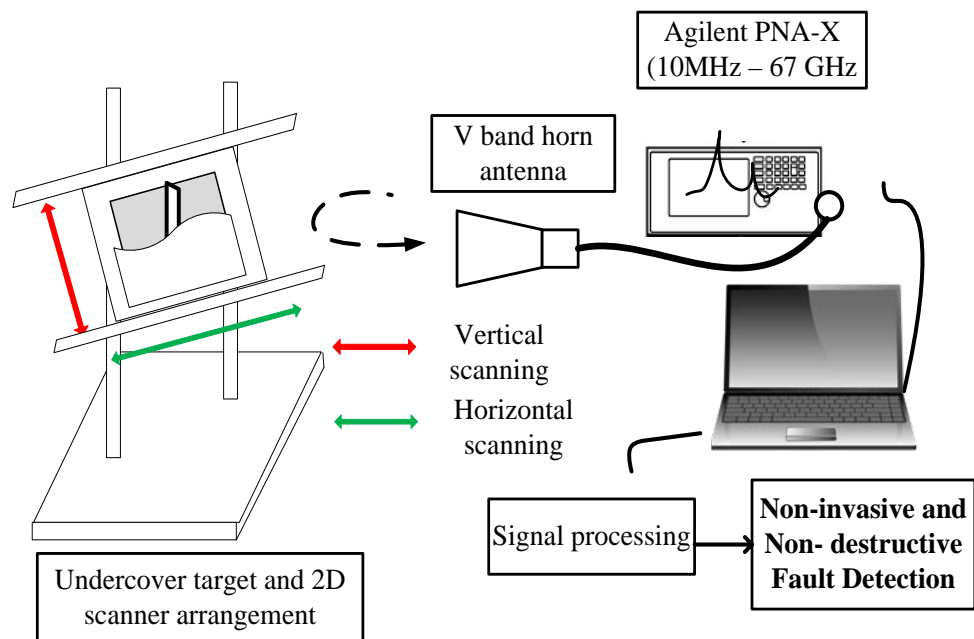

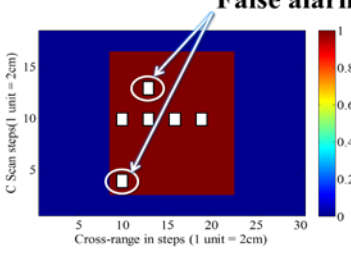
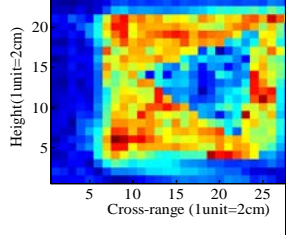
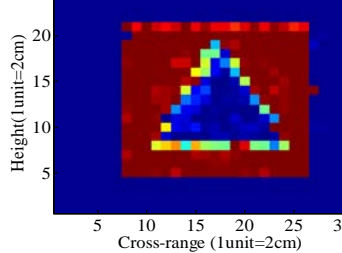
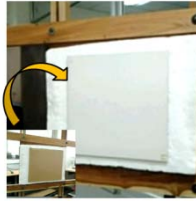
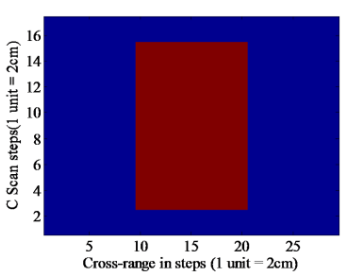
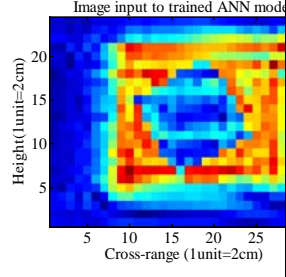
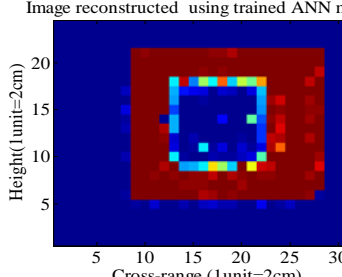

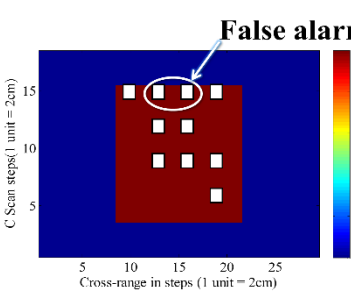

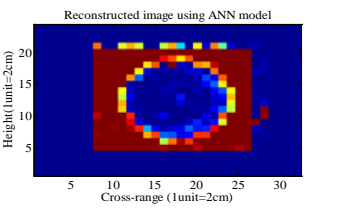


Fig. Ingeniously configured MMW imaging radar system

Results: Non-destructive undercover crack detection and Shape detection using
MMW imaging system

Actual tile targets	Undercover target's crack detection output	Test Targets	Shape identified
			
			
			

List of Publications

List of Publication in Journals

- Pooja Mishra, Shailesh Kumar and **Dharmendra Singh**, “An approach for finding possible presence of water ice deposits on lunar craters using MINISAR data,” IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, vol.8, no.1, 2015.
- Ravi Panwar, Vijaya Agarwala, **Dharmendra Singh**, “A cost effective solution for development of broadband radar absorbing material using electronic waste,” Ceramic International, Elsevier, vol. 41, pp. 2924-2931, 2015.
- S. Agarwal, A. Bisht, **D. Singh** and N.P. Pathak, “A Novel Neural Network based Image Reconstruction Model with Scale and Rotation Invariance for Target Identification and Classification for Active Millimeter Wave Imaging” in Springer, Journal of Infrared, Millimeter, and Terahertz Waves, Vol. 35, Issue 12, pp. 1045-1067, 2014.
- M. Najim, P. Smitha, V. Agrawala, and **D. Singh**, “Development of Multi-layer Zinc Oxide-Iron Composite Coatings for Microwave Absorption,” Advanced Science Letters 20 1490, 2014.
- Ravi Panwar, Smitha Puthucheri, Vijaya Agarwala, **Dharmendra Singh**, “Investigation of a novel natural waste composite as a radar wave absorber at X-band,” Advanced Science Letters, vol. 20, pp. 1425-1429, 2014.
- Ravi Panwar, Vijaya Agarwala, and **Dharmendra Singh**, “Design and experimental verification of a thin broadband nanocomposite multilayer microwave absorber using genetic algorithm based approach,” American Institute of Physics (AIP) Proc., vol. 1620, pp. 406-415, 2014.
- Pooja Mishra and **Dharmendra Singh**, “A statistical measure based adaptive land cover classification algorithm by efficient utilization of polarimetric SAR observables” IEEE Geoscience and Remote Sensing, vol.52, pp.2889-2900, 2014.
- Abhishek Kumar, Vijaya Agarwala and **Dharmendra Singh**, “Microwave absorbing behavior of metal-dispersed TiO₂ nanocomposites”, Advanced Powder Technology, Vol. 25, 2014.
- Gunjan Mittal, Pooja Mishra, and **Dharmendra Singh**, “Fusion of polarimetric channel information of PALSAR data for land cover classification” Geomatics, Natural Hazards and Risk, vol.5, pp.157-172, 2013.
- Abhishek kumar, Vijaya Agarwala, **Dharmendra Singh**, “Effect of particle size of BaFe₁₂O₁₉ on the microwave absorption characteristics in X-band” Progress in Electromagnetics Research B, vol. 29, pp.223-236, 2013.
- Abhishek Kumar, Vijaya Agarwala and **Dharmendra Singh**, “Effect of milling on dielectric and microwave absorption properties of SiC based composites” Ceramic International, vol. 40, pp. 1797–1806, 2013.
- **D. Singh**, A. Kumar, S. Meena, and V. Agarwala, “Analysis of frequency selective surfaces for radar absorbing materials” Progress In Electromagnetics Research B, vol. 38, pp.297-314, 2012.
- Abhishek Kumar, Vijaya Agarwala and **Dharmendra Singh**, “Effect of Mg substitution on microwave absorption of BaFe₁₂O₁₉” Advances in Materials and processing, vol.585, pp.62-66, 2012.
- Pooja Mishra and **Dharmendra Singh**, “Land cover classification of PALSAR images by knowledge based decision tree classifier and supervised classifiers based on SAR observables” Progress in Electromagnetics Research B, vol.30, pp.47-70, 2011.
- Rishi Prakash, **D. Singh** and N. P. Pathak, “A fusion approach to retrieve soil moisture with SAR and Optical data” IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, vol.5, pp.196-206, 2011.

- Abhay N Gaikwad, **Dharmendra Singh** and M J Nigam, "Application of Clutter Reduction Techniques for Detection of Metallic and Low Dielectric Target Behind the Brick Wall by SF-CW Radar in UWB Range", IET Radar, SONAR and Navigation, vol. 5, pp. 416-425, 2011.
- K. Tiwari, M. Arora and **D. Singh**, "An Assessment of Independent Component Analysis for Detection of Military Targets from Hyperspectral Images" International Journal of Applied Earth Observation and Geoinformation (Elsevier Publication), vol. 13, pp.730-740, 2011.
- G. R. Harish Kumar and **D. Singh**, "Quality Assessment of Fused Image of MODIS and PALSAR", Progress in Electromagnetics Research, , PIER B, vol. 24, pp. 191-221, 2010.
- R. Prakash, D. Singh and N. P. Pathak, "The Effect of Soil Texture in Soil Moisture Retrieval For Specular Scattering at C-Band" Progress in Electromagnetics Research, vol. 108, pp. 177-204, 2010.
- T. Pant, **D. Singh** and T. Srivastava, "The Potential Application of Fractal Approach for Surface Roughness Retrieval: A Study for Simulated Surfaces" International Journal of Geomatics, Natural Hazards and risk Management (Published by Taylor & Francis), vol. 1, pp. 243-257, 2010.
- Gunjan Mittal and **D. Singh**, "Critical analysis of microwave scattering response on roughness parameter and moisture content for periodic rough surfaces and its retrieval," Progress in Electromagnetic Research (PIER),vol. 100, pp. 129-152, 2010.
- Triloki Pant, **D. Singh** and TanujaSrivastava "Advanced Fractal Approach for Unsupervised Classification of SAR Images", Advances in Space Research, vol. 45, pp. 1338-1349, 2010.
- Chamundeeswari V V, **D. Singh**, and Singh K, "Analysis of role of feature measures in PCA based unsupervised classification of SAR images" IEEE Geosciences and Remote Sensing Letter, vol. 6.,pp. 214-218, 2009.
- Rishi P. Srivastva, **D. Singh** and N. P. Pathak, "Microwave Specular Scattering Response of Soil Texture at X-Band", Advances in Space Research, vol. 44, pp. 801-814, 2009.
- P. K. Verma, A. N. Gaikwad, **D. Singh** and M. J. Nigam, "Analysis of Clutter Reduction Techniques for TWI in UWB Range" Progress in Electromagnetics Research (Published by USA), vol. 15, pp. 245-265, 2009.
- **D. Singh**, N. K. Choudhary, K. C. Tiwari, Rajendra Prasad, "Shape Recognition of Shallow Buried Metallic Objects at X-Band using ANN and Image Analysis Techniques" International Journal of Progress in Electromagnetic Research, PIER B, vol. 13, pp. 257-273, 2009.
- **D. Singh**, V. Srivastava, D. Bhimsara, B. Pandey and R. Prasad, "Application of Neural Network with Error Correlation and Time Evolution for Retrieval of Soil Moisture and other Vegetable Variables" Progress in Electromagnetics Research, vol. 17, pp. 29-48, 2009.
- R. Prasad, R. Kumar and **D. Singh**, "A Radial Basis Function Approach to Retrieve Soil Moisture and Crop Variables from X-Band Scatterometer Observations" Progress in Electromagnetics Research, vol. 12, pp. 201-217, 2009.
- R. S. Gautam, **D. Singh**, A. Mittal, "An efficient contextual algorithm to detect hotspots with NOAA/AVHRR data", IEEE Transactions on Geosciences & Remote Sensing, vol. 46 (7), pp. 2005-2015, 2008.
- R. Chandra, Abhay N Gaikwad, **D. Singh** and M J Nigam, "An Approach to Remove the Clutter and Detect the Target for Ultra-Wideband through Wall Imaging, "International Journal of Geophysics and Engineering, vol. 5, pp.412-419, (Published by Institute of Physics, IoP, U.K.) 2008.
- K. C. Tiwari, **D. Singh** and M. Arora, "Development of a Model for Detection and Estimation of Depth of Shallow Buried Non-Metallic Landmine at Microwave X-Band Frequency", International Journal of Progress in Electromagnetic Research, vol. 79, pp. 225-250, 2008.

- R. S. Gautam, **D. Singh**, A. Mittal, P. Sajin, "Application of SVM on satellite images to detect hotspots in Jharia coal field region of India", *Advances in Space Research*, Elsevier Publication, vol. 41, pp. 1784-1792, 2008.
- Chamundeeswari V V, **Singh D**, and Singh K, "An adaptive method with integration of multi-wavelet based features for unsupervised classification of SAR images," *Journal of Geophysics and Engineering*, vol. 4, pp. 384-393, 2008.
- **D. Singh** and Ashutosh, "An Efficient Modeling with GA Approach to Retrieve Soil Texture," *Moisture and Roughness from ERS-2 SAR Data*, *International Journal of Progress in Electromagnetic Research (Published by USA)*, vol. 77, pp. 121-136, 2007.
- **D. Singh** and V. Dubey, "Microwave Bistatic Polarization Measurements for Retrieval of Soil Moisture with Incidence Angle Approach," *Journal of Geophysics and Engineering*, (Published by Institute of Physics, IoP, U.K.), pp.75-82, 2007.
- **D. Singh**, Y. Singh and K. P. Singh, "Polarization Ratio Approach to Retrieve the Surface Roughness at X-Band", *Journal of IETE*, vol. 53, pp. 295-302, 2007.
- R. S. Gautam, **D. Singh**, A. Mittal, "A fuzzy logic approach to detect hotspots with NOAA/AVHRR image using multi-channel information fusion technique", *Signal, Image and Video Processing*, Springer Publication, vol. 1, pp. 347-357, 2007.
- R. S. Gautam, **D. Singh**, A. Mittal, "Application of principal component analysis and information fusion technique to detect hotspots in NOAA/AVHRR images of Jharia coalfield", *SPIE Journal of Applied Remote Sensing (JARS)*, vol. 1, 013523, 2007.
- **D. Singh**, R. Sao and K. P. Singh, "An Indirect Approach to Assess the Pests on Sorghum by Remote Sensing at X-band" *International Journal of Advances in Space Research*, Elsevier Pub., vol. 37, pp. 155-167, 2007.
- R. Parida, **D. Singh** and N. K. Agrawal, "Implementation of Multilayer Ferrite Radar Absorbing Coating With Genetic Algorithm for Radar Cross Section Reduction at X-Band", *Indian Journal of Radio and Space Physics*, 2007.
- **D. Singh**, "Scatterometer Performance with Polarization Discrimination Ratio Approach to Retrieve Crop Soybean Parameter at X-band", *International Journal of Remote Sensing*, vol. 27, no. 19, pp. 4101-4115, 2006.
- R. Agrawal, **D. Singh**, and K. P. Singh "Detection of coal mine fires in Jharia coal field using NOAA/AVHRR data", *International Journal of Geophysics and Engineering* (Published by Institute of Physics, IoP, U.K.), vol 3, pp. 212-218, 2006.
- **D. Singh**, I. Herlin, J.P. Berroir, M. Simoes, and Enio. F. Silva, "Environmental Degradation Analysis Using NOAA/AVHRR Data" *International Journal of Advances in Space Research*, Elsevier Pub., vol. 37, pp. 720-727, 2006.
- **D. Singh** "A Simplistic Incidence Angle approach to Retrieve the Soil Moisture and Surface Roughness at X-Band", *IEEE Trans. on Geo. Sci. and Rem. Sensing*, vol. 43, no. 11, pp-2606-2611, 2005.
- **D. Singh**, I. Herlin, J.P. Berroir, "An Approach to Estimate the Evapotranspiration Using NOAA/AVHRR Data" *Journal of Indian Society of Remote Sensing*, vol. 33, no. 2, pp. 211-217, 2005.
- **D. Singh**, I. Herlin, J. P. Berroir, S. Bouzidi, and F. Lahoche, "Estimation of evapotranspiration by remote sensing data" *Indian Journal Mausam*, vol. 54, pp. 247-252, **2003**.
- **D. Singh**, Y. Yamaguchi, and K. P. Singh, "Retrieval of wheat chlorophyll by scatterometer for remote sensing" *International Journal of Remote Sensing*, vol.24, no. 23, pp 4939-4951 **2003**.
- **D. Singh**, K. P. Singh and I. Herlin, "Ground based scatterometer measurements of periodic surface roughness and correlation length for remote sensing" *International Journal of Advances in space research*, Elsevier Pub. vol. 32, no. 11, pp-2281-2286, **2003**.
- **D. Singh**, I. Herlin, J.P. Berroir, M. Simoes, and Enio. F. Silva, "An approach to correlate NDVI with soil colour for erosion process using NOAA/AVHRR data" *International Journal of Advances in space research*, Elsevier Pub. Vol 33, pp. 328-332, **2003**

- **D. Singh**, S. K. Sharan and K. P. Singh" Response of microwave scattering on crop (wheat) and crop covered soil moisture for remote sensing" Indian Journal of Radio & Space Physics, vol.30, pp.198-204, Aug. **2001**.
- **D. Singh**, K. P. Singh, and S. K. Sharan, "Microwave Response to broad leaf vegetation (spinach) and vegetation covered soil for remote sensing" **Journal** of Indian Society of Remote Sensing, vol. 28(ii), pp. 153-158, **2000**.
- **D. Singh**, Y.Yamaguchi, H. Yamada and K. P. Singh, "Response of microwave on bare soil moisture and surface roughness by X-band scatterometer" IEICE Journal of Japan, pp. 2038-2043, vol.9, Sept.**2000**
- **D. Singh** and S. K. Sharan "Effect of vegetation biomass on microwave emissivity at X-band" Indian journal of radio & space physics, vol.28, pp. 103-108, June 1999.
- **D. Singh**, " Soil moisture response on microwave scattering for remote sensing" Indian journal of SADHANA, vol.24, part 6,pp. 485-493, Dec. 1999.
- **D. Singh**, "Response of microwave for broad leaf crop covered ground surface for remote sensing" Indian Journal of ActaCinicaIndica, vol. 23, no. 1, pp. 23-26, 1997.
- **D. Singh**, K.P. Singh, S.K Sharma and P.K Mukharjee, "Effect of soil moisture and crop cover in remote sensing" Journal of Advances in space research, U.K, vol. 18, pp 7 (63)-7(66), 1996.
- K.P Singh, **D. Singh**, S.K Sharma, and P.K Mukharjee, "Remote sensing of earth's surface roughness at microwave frequency" Journal of Advances in space research, U.K, vol. 16, pp 10 (189)-10 (192), 1995.

List of Publication in National/ International Conferences

- Shruti Gupta, **Dharmendra Singh**, Sandeep Kumar," An Efficient use of Random Forest Techniques for SAR Data Classification", In IEEE Geoscience and Remote Sensing Symposium, 2015, IGARSS, Milan, Italy, 26–31 July 2015, (Accepted).
- Ankita Jain, **Dharmendra Singh**, "Use of Polarimetric Indices for Estimating Soil Moisture," International Geoscience and Remote Sensing Symposium (IGARSS) 2015, Milan, Italy, 26-31 July, 2015. (Accepted).
- Ravi Panwar, Smitha Puthucheri, Vijaya Agarwala, **Dharmendra Singh**, " Development of Ferrite-Graphene Nano composite with Significantly Enhanced Electromagnetic Wave Absorption at Less Thickness", IEEE International Magnetics Conference, Beijing, China, 11-15 May, 2015(accepted).
- Pooja Mishra, Shailesh Kumar, Keshava P Singh, **Dharmendra Singh**, "Pattern analysis of MiniSAR data for differentiation of icy craters in lunar surface," IEEE International Geoscience and Remote Sensing Symposium, (Accepted).
- Shruti Gupta, **Dharmendra Singh**, Sandeep Kumar, "Development of Monitoring System Based on Feature Extraction Using Low Resolution Satellite Images," UCOST, Dehradun, India, 26-28 February, 2015.
- Ravi Panwar, Smitha Puthucheri, Vijaya Agarwala, and **Dharmendra Singh**, "Study to explore the possible application of sugarcane bagasse for development of broadband microwave absorber: a cost effective solution," Uttarakhand State Council for Science & Technology (UCOST), Dehradun, 26-28 February, 2015.
- Tasneem Ahmed, **Dharmendra Singh** and Balasubramanian Raman, "KLT Tracker Based Land Cover Monitoring using Satellite Images," in the Proceeding of 9th Uttarakhand State Science and Technology Congress 2014-2015, 26-28 February, 2015, at Uttarakhand State Council for Science & Technology, Vigyan Dham, Dehradun, pp. 249.
- S. Agarwal and **D. Singh**, "Non-Invasive and Non-Destructive underline Fault Detection using Active Millimeter Wave Radar", 9thUttarakhand State Science and Technology Congress 2014-15, Dehradun, 26-28 Feb. 2015.

- Shruti Gupta, **Dharmendra Singh**, Sandeep Kumar, "Fusion of Color Histograms Using PCA for SAR Data Classification," Recent Advances in Electronics and Computer Engineering (RAECE) 2015, National Conference, Roorkee, India, 13-15 February, 2015.
- S. Agarwal and **D. Singh**, "Non-Invasive Conceal Weapon Detection using 60 GHz Millimeter Wave Radar System", National conference on Recent Advances in Electronics and Computer Engineering (RAECE 2015), IIT Roorkee, 13-15 Feb. 2015.
- Ravi Panwar, Smitha Puthucheri, Vijaya Agarwala, **Dharmendra Singh**, "Fractal Frequency Selective Surface Embedded Broadband Microwave Absorber using Disassembled Waste Printed Circuit Boards," National Conference on Recent Trends in Electronics and Computer Engineering (RAECE-2015), IIT Roorkee, 13-15 February, 2015.
- Akanksha Garg, M.Shashi Vardhan Naidu, Hussein Yahia, and **Dharmendra Singh**, "Wavelet A Comparison of Wavelet Based Techniques for Resolution Enhancement of Moderate Resolution Satellite Images", RAECE , 13-15 Feb 2015.
- Ankita Jain, **Dharmendra Singh**, "Decision Tree Approach to Classify the Fully Polarimetric RADARSAT-2 Data," Recent Advances in Electronics and Computer Engineering (RAECE) 2015, National Conference, Roorkee, India, 13-15 February, 2015.
- Arunima Singh, Ravi Panwar, Smitha Puthucheri, Vijaya Agarwala, and **Dharmendra Singh**, "Parametric Analysis of Frequency Selective Surfaces Over Radar Absorbing Nanocrystalline Structures," National Conference on Recent Trends in Electronics and Computer Engineering (RAECE-2015), Indian Institute of Technology Roorkee, 13-15 February, 2015.
- M. Najim, P. Smitha, V. Agrawala, and **D. Singh**, presented a paper on "Development of FSS Printed on Multi-layered Iron-Zinc Oxide Composite Coatings for Microwave Absorption," in National Conference on Recent Advances in Electronics and Computer Engineering 2015 (RAECE- 2015) held at IIT Roorkee, Roorkee, February 13-15, (2015).
- Tasneem Ahmed, Shashi Vardhan Naidu, **Dharmendra Singh** and Balasubramanian Raman, "An Approach to Detect Hotspots with INSAT-3D Data," in Proceeding of National Conference on Recent Advances in Electronics & Computer Engineering, 13th-15th February, 2015, IIT Roorkee, India.
- Kumar Ujjwal Tyagi, Tasneem Ahmed, **Dharmendra Singh** and Balasubramanian Raman, "Application to Use SARAL Altimetry for Water Level Monitoring Over Ramganga Reservoir and Its Correlation with MODIS Data," in Proceeding of National Conference on Recent Advances in Electronics & Computer Engineering, 13th-15th February, 2015, IIT Roorkee, India.
- Ajay Kumar Maurya, Tasneem Ahmed, **Dharmendra Singh** and Balasubramanian Raman, "An Approach to Use Polarimetric Signature for Land Cover Classification," in Proceeding of National Conference on Recent Advances in Electronics & Computer Engineering, 13th-15th February, 2015, IIT Roorkee, India.
- Vinay Kumar, Tasneem Ahmed and **Dharmendra Singh**, "Soil Moisture Retrieval of Vegetated Land Cover Using RADARSAT-2 Data," in Proceeding of National Conference on Recent Advances in Electronics & Computer Engineering, 13th-15th February, 2015, IIT Roorkee, India.
- Shruti Gupta, **Dharmendra Singh**, Sandeep Kumar, "An approach based on texture measures to classify the fully polarimetric SAR image," Industrial and Information Systems (ICIIS), 2014, 9th International Conference (IEEE), Gwalior, India, 15-17 December, 2014
- S. Agarwal, N. P Pathak and **D. Singh**, "Active millimeter wave radar system for non-destructive, non-invasive underline fault detection and multilayer material analysis", International Microwave and RF Conference (IMaRC2014), IISc Bangalore, 15-17 Dec. 2014.

- Akanksha Garg, Shashi Vardhan Naidu, Tasneem Ahmed, **Dharmendra Singh**, "Wavelet Based Resolution Enhancement for Low Resolution Satellite Images," in Proceeding of 9th IEEE International Conference on Industrial and Information Systems (ICIIS2014), 15-17 December 2014, Atal Bihari Vajpayee Indian Institute of Information Technology and Management Gwalior, India (IEEE Xplore).
- Tasneem Ahmed, Akanksha Garg, **Dharmendra Singh** and Balasubramanian Raman, "An Approach to Monitor River Catchment with PALSAR Satellite Data," in Proceeding of 9th IEEE International Conference on Industrial and Information Systems (ICIIS2014), 15-17 December 2014, Atal Bihari Vajpayee Indian Institute of Information Technology and Management Gwalior, India (IEEE Xplore).
- Ravi Panwar, Smitha Puthucheri, Vijaya Agarwala, **Dharmendra Singh**, "Effect of Particle Size on Radar Wave Absorption of Fractal Frequency Selective Surface Loaded Multilayered Structures, IEEE Microwave Theory and Techniques Society (MTT-S) International RF & Microwave Conference, Bangalore, pp. 186-189, 15-17 December, 2014.
- Ankita Jain, **Dharmendra Singh**, "Estimation of Soil Moisture using Fully Polarimetric PALSAR Data," Industrial and Information Systems (ICIIS), 2014, 9th International Conference (IEEE), Gwalior, India, 15-17 December, 2014.
- Ravi Panwar, Smitha Puthucheri, Vijaya Agarwala, and **Dharmendra Singh**, "Design of Frequency Selective Surface Embedded Broadband Multilayered Microwave Absorbing Structures," 6th IEEE International Conference on Power Electronics, NIT Kurukshetra in collaboration with PES-IAS & PELS-IES Chapters of IEEE Delhi Section, 8-10 December, 2014.
- Ravi Panwar, Vijaya Agarwala, **Dharmendra Singh**, "Investigation of a novel stone dust based composite waste material coated over cloth for radar wave absorption at X-Band," International Conference on Electron Microscopy, Electron Microscope Society, University of Delhi, New Delhi, 7-11 July, 2014.
- Tasneem Ahmed, Div J. Singh, **Dharmendra Singh**, Balasubramanian Raman and R. Devi Subramanian, "Application of KLT (Kanade-Lucas-Tomasi) Tracker for Hotspot Observation," in Proceeding of Geomatrix'14 National Conference on Geo-informatics in Rural, Urban & Climatic Studies, 06-07th June 2014, IIT Bombay, Powai, Mumbai, pp. 166-169.
- Ravi Panwar, Vijaya Agarwala, **Dharmendra Singh**, "Investigation of a Novel Natural Waste Composite as a Radar Wave Absorber at X-band, National Conference on Nanotechnology and Renewable energy," Jamia Millia Islamia University, New Delhi, 28-29 April, 2014.
- M. Najim, P. Smitha, V. Agrawala, and **D. Singh**, presented a poster on "Development of Multi-layer Zinc Oxide-Iron Composite Coatings for Microwave Absorption," in National Conference on Nanotechnology and Renewable Energy (NCNRE-14) held at Jamia Millia Islamia, Delhi, April 28-29, (2014).
- Ravi Panwar, Vijaya Agarwala, **Dharmendra Singh**, "Design and experimental verification of a thin broadband nano-composite multilayer microwave absorber using genetic algorithm based approach," International conference on Light "Optics 14", NIT Calicut, Kerala, 19-21 March, 2014.
- Pooja Mishra and **Dharmendra Singh**, "Critical analysis of lunar surface for its physical properties: an application of MiniSAR data," 45th Lunar and Planetary Science Conference, The Woodlands, Texas, 17-21 March, 2014.
- Abhishek Kumar, Vijaya Agarwala and **Dharmendra Singh**, "Effect of Co substitution on microwave absorption of BaFe₁₂O₁₉," TMS Annual Meeting & Exhibition, San Diego, USA, Feb 16-20, 2014.
- S. Isha, M. Najim, P. Smitha, **D. Singh** & G. D. Varma, "Microwave Absorption Properties of Nanostructured Nickel Ferrite," IEEE Xplore, International Conference on Electronics and Communication System (ICECS -2014) held Karpagam College of

Engineering, Coimbatore, Tamil Nadu (2014) (ISBN no. 978-1-4799-2321-2, DOI: 10.1109/ECS.2014.6892701), Feb 2014.

- Pooja Mishra, Keshav P Singh, **Dharmendra Singh** and Naveen Singh Rajput, "Critical analysis of deorientation effect on various land covers: an application of polSAR data, in IEEE International Geoscience and Remote Sensing Symposium, 2014, Quebec, Canada.
- Amit Singh Bisht, Prabhat Sharma, **Dharmendra Singh**; "A Novel C Scan Processing Approach of Target Detection in Ground Penetrating Radar" in International Conference on Optics and Optoelectronics (ICOL-2014) XXXVIII Symposium of the Optical Society of India held at IRDE (DRDO), Dehradun, 2014.
- S. Agarwal, N. P. Pathak and **D. Singh**, "Concurrent 83GHz/94 GHz Parasitically Coupled defected microstrip feedline Antenna for Millimeter Wave Applications", 4th Applied Electromagnetics Conference (AEMC), KIIT Bhubneshwar, pp. 1-2, 18-19 Dec. 2013.
- Tasneem Ahmed, **Dharmendra Singh**, Shweta Gupta and Balasubramanian Raman, "Particle Swarm Optimization Based Fusion of MODIS and PALSAR Images for Hotspot Detection," International Conference on Microwave and Photonics, 13th – 15th December 2013, Indian School of Mines, Dhanbad, India, pp. 1-6(IEEE Xplore).
- Pooja Mishra, U Rajashekhar and **Dharmendra Singh**, "Study and characterization of lunar craters using MINI-SAR data of Chandrayaan-1," International Conference on Microwave and Photonics, Dhanbad, India, 13 – 15 December, 2013.
- Shruti Gupta, **Dharmendra Singh**, Pooja Mishra and Sandeep Kumar Garg, "Probability Density Functions Based Study for Identification of Land Cover Using SAR Data," International Conference on Microwave and Photonics, Dhanbad, India, 13-15 December, 2013.
- Pooja Mishra, Shailesh Kumar and **Dharmendra Singh**, "An Approach to Determine Possible Existence of Water Ice Deposits on Lunar Craters Using Minisar Data," IEEE International Symposium on Geoscience and Remote Sensing, Melbourne, Australia, 21-26 July 2013.
- Pooja Mishra, Shivangi Goel, **Dharmendra Singh**, "An Impedance Based Approach to Determine Soil Moisture Using Radarsat-2 Data," IEEE International Symposium on Geoscience and Remote Sensing, Melbourne, Australia, 21-26 July 2013.
- Abhishek Kumar, Vijaya Agarwala and **Dharmendra Singh**, "Magnetic and microwave dielectric properties of $MFe_{12}O_{19}$ (M: Ba, Sr) synthesized by sol-gel auto combustion method", ISMSE, Singapore, July 2013.
- Pooja Mishra and **Dharmendra Singh**, "Transmission Line Theory Based Two Layer Model for Determining Soil Moisture, International Archives of the Photogrammetry," Remote Sensing and Spatial Information Sciences, Volume XL-1/W1, 253-256, doi:10.5194/isprsarchives-XL-1-W1-253-2013, Hannover, Germany, 21 – 24 May 2013.
- Abhishek Kumar, Vijaya Agarwala and **Dharmendra Singh**, "Synthesis, Microwave Absorbing properties of Metal- particles dispersed Al_2O_3 ", National conference on Advances in naval materials, NIOT, Chennai) Feb22-23, 2013.
- S. Agarwal, N. P Pathak and **D. Singh**, "Concurrent 85 GHz/94 GHz slotted gap coupled parasitic microstrip antenna for millimeter wave applications," National Conference on Communications (NCC), IIT Delhi, pp.1-5, 15-17 Feb. 2013.
- Pooja Mishra, Shivangi Goel, **Dharmendra Singh** and V. Srivastava, "Multilayer modeling approach for measuring soil moisture and thickness using genetic algorithm," in International Conference on Microwaves, Antenna Propagation and Remote Sensing (ICMARS), Jodhpur, India, Dec. 11-15, 2012.
- Pooja Mishra and **Dharmendra Singh**, "Spatial statistics based adaptive classification approach using L-band ALOS PALSAR data" National Symposium on Space Technology for Food & Environmental Security of Indian Society of Remote Sensing and Indian Society of Geomatics, New Delhi, 5-7 Dec, 2012.

- Pooja Mishra, **Dharmendra Singh** and Shailesh Kumar, "Unsupervised contextual classification of Chandrayaan-1's Mini SAR image using fractal based approach," National Symposium on Space Technology for Food & Environmental Security of Indian Society of Remote Sensing and Indian Society of Geomatics, New Delhi, 5-7 Dec. 2012.
- Abhishek Kumar, Kolli Ganapathi, **Dharmendra Singh** and VijayaAgarwala, "Radar cross section measurements and simulations of a regular shapes in the X-band", National Symposium on Space Technology for Food & Environmental Security and Annual Conventions of Indian Society of Remote Sensing and Indian Society of Geomatics, December 5-7, 2012.
- Abhishek Kumar, VijayaAgarwala, **Dharmendra Singh** and RajkumarJani, "Effect of silicon carbide morphology on dielectric properties at X-band", 57th DAE Solid State Physics Symposium (SSPS-DAE 2012), Indian Institute of Technology Bombay, Mumbai, December 3-7, 2012.
- Abhishek Kumar, VijayaAgarwala and **Dharmendra Singh**, "Effect of Mg substitution on microwave absorption of $\text{BaFe}_{12}\text{O}_{19}$ ", International Conference on Advances in Materials and Processing Challenges and Opportunities (AMPCO-2012) ,IIT Roorkee, November 2-4, 2012.
- S. Agarwal, N. P Pathak and **D. Singh**, "Performance comparison of microstrip patch antenna for 94 GHz imaging applications," 7th IEEE International Conference on Industrial and Information Systems (ICIIS), IIT Madras, pp.1-4, 6-9 Aug. 2012.
- Lokesh Meghwal, Tasneem Ahmed, **Dharmendra Singh** and Balasubramanian Raman, "Classification of Land Cover Using Different Indices on MODIS Imagery," National Conference Recent Trends on Microwave Techniques and applications, July 30th to August 1st, 2012, Jaipur, India, pp. 71.
- Shailesh Kumar, **Dharmendra Singh**, Pooja Mishra, "Fractal and Moran's I analysis for classification of Lunar surface using Mini-SAR data of Chandrayan-I", National Conference on Recent Trends in Microwave Techniques and Applications, Microwave-12, Jaipur, India, July 30- Aug 1, 2012.
- Tasneem Ahmed, **Dharmendra Singh** and Balasubramanian Raman, "Comparative Study of Supervised and Unsupervised Classification for Understanding the Polarimetric Behavior for Land Cover Classification," 39th COSPAR Scientific Assembly ,14-22 July 2012, Mysore, India (<https://www.cospar-assembly.org/abstractcd/COSPAR-12/A3.1/TFS-C-40>).
- Abhishek Kumar, VijayaAgarwala and **Dharmendra Singh**, "Effect of calcinations temperatures on morphology and microwave absorption properties of SiC ", International Conference on Material Science and Technology (ICMST-2012), Kottayam, Kerala, June 10-14, 2012.
- Abhishek Kumar, VijayaAgarwala and **Dharmendra Singh**, "Synthesis, reaction kinetic and microwave absorption studies of $\text{BaFe}_{12}\text{O}_{19}$ nanocrystals", International Conference on Functional Materials for Defence (ICFMD-2012), Defence Institute of Advanced Technology, Pune ,May 18-22, 2012.
- Pooja Mishra and **Dharmendra Singh**, "Study of effect of deorientation on PALSAR data for land cover identification" in 39th COSPAR Scientific Assembly, Mysore, India, 2012.
- Pooja Mishra and **Dharmendra Singh**, "Role of polarimetric indices based on statistical measures to identify various land cover classes in ALOS PALSAR data" Synthetic Aperture Radar (AP SAR), 2011 3rd International Asia-Pacific Conference on, pp.1-4, Sept. 26-30 2011.
- **D. Singh** and P. Mishra, "Polarimetric data application for identification of various land covers" Workshop on Second Chandrayaan-1 Mini-SAR Data Analysis, Ahmedabad, India Sept. 11, 2011.
- **D. Singh** and P. Mishra, "An adaptive approach for polarimetric data to classify the land cover" International Workshop, Niigata University, Japan, Sept. 2011.

- Harish, H. Yahia and **D.Singh**, Analysis of the curvelet based approach for the multi-band fusion of modis satellite data for land cover analysis”19th European Signal Processing Conference, pp. 1145-1149, Spain, 29Aug-2 Sept., 2011.
- Gaikwad,A. N., **D. Singh** and M. J. Nigam, “Recognition of target in through wall imaging using shape feature extraction” IGARSS, IEEE, Canada, 2011.
- **D. Singh** et al, “SAR and Optical Data Utilization for Soil Moisture Retrieval in Vegetated Region” APSAR-Kora, 2011.
- **D. Singh**, S. Pandey and M. Jain, Critical analysis of SFCW- GPR data for real time target identification” IEEE symposium series in computational intelligence, Paris, 2011.
- Rishi Prakash, **Dharmendra Singh** and Nagendra P Pathak, "Soil Moisture Retrieval in Vegetated Area with the Utilization of Polarimetric SAR and MODIS data," ICRS-2010, Jodhpur, India, Dec. 14-17, 2010.
- Pooja Mishra and **Dharmendra Singh**, “Knowledge-based decision tree classification for ALOS-PALSAR quad-pol data and its comparison with supervised classification approaches based on various SAR observables” ICRS-2010, Jodhpur, India, Dec. 14-17, 2010.
- Shiv Ram Meena and **Dharmendra Singh**, "Analysis of Frequency Selective Surfaces for radar absorbing materials," ICRS-2010,Jodhpur, India, Dec. 14-17, 2010.
- **Dharmendra Singh** and V VChamundeeswari, “Role of Texture Measures on Roughness for Labeling the Clusters in SAR Images” ICRS-2010, Dec. 14-17, 2010, Jodhpur, India.
- Rajesh Tiwari, **Dharmendra Singh**, M. Mende, D. S. Chauhan and R.K. Singh, “Application of GA to Retrieve Soil Parameters from ERS-2 Data” ICRS-2010, Jodhpur, India, Dec. 14-17, 2010.
- V VChamundeeswaria and **Dharmendra Singh**, “Adaptive algorithm for unsupervised classification of SAR images by wavelet analysis” ICRS-2010, Jodhpur, India, Dec. 14-17, 2010.
- **D. Singh**, R. Prakash and N. P. Pathak, “Satellite Image Application for Retrieving the crop covered soil moisture” Proceeding of ICON, BHU, India, Dec 2010.
- T. Pant, **D. Singh**, and T. Srivastava, “Application of Fractal Parameters for Unsupervised Classification of SAR images: A Simulation based Study” IITM, Allahabad, India, Dec. 2010.
- PatriUpender, **Dharmendra Singh**, Sang-Eun Park, Yoshio Yamaguchi “Comparative Study to Estimate Soil Moisture with PALSAR Data” International Conference on Space, aeronautical and Navigational Electronics 2010,Korea,Oct. 27-29, 2010.
- **D. Singh** and G. Mittal, “Contribution of Polarimetric Information Fusion and Target Decomposition Methods for Landcover Classification” AP-RASC-2010, Japan, 2010.
- P. Mishra and **D. Singh**, “Effect of Ensemble Averaging on Classification based on 4-D Modified Decomposition of ALOS PALSAR Quad Pol Data” AP-RASC-2010, Japan, 2010.
- R. Sato, A. Sato, Y. Yamaguchi, **D. Singh**, G. Singh, H. Yamada, “Landcover Monitoring in India Using POLSAR image Analysis with Quad Polarimetric ALOS PALSAR data” AP-RASC-2010, Japan, 2010.
- V. V. Chamundeeswari and **Dharmendra Singh**, “Surface parameter characterization from texture measures for labeling in SAR images,” in National Seminar on Radar Remote Sensing and Its Application, Roorkee, India,25-26 September 2009.
- Gunjan Mittal and **Dharmendra Singh**, “Landcover classification based on decomposition methods: First results with PALSAR polarimetric data,” National Seminar on Radar Remote Sensing and Its Application, Roorkee, India,25-26 September 2009..
- Rishi Prakash, **Dharmendra Singh** and N. P. Pathak, “Specular scattering for soil texture retrieval at X-band,” National Seminar on Radar Remote Sensing and Its Application, Roorkee, India,25-26 September 2009.

- Triloki Pant, **Dharmendra Singh** and TanujaSrivastava, "Fractal modeling of SAR images for retrieval of surface dielectric," National Seminar on Radar Remote Sensing and Its Application, Roorkee, India ,25-26 September 2009.
- Rishi Prakash, **Dharmendra Singh** and N. P. Pathak, "Bistaticscatterometer performance for soil texture analysis and its Retrieval at C-Band," Indian Society of Remote Sensing Symposium ISRS 2009, Nagpur, India,17-19 September, 2009.
- Triloki Pant, **Dharmendra Singh** and TanujaSrivastava, "Application fractal dimension for retrieval of surface roughness parameters from classified agricultural areas using SAR images," Indian Society of Remote Sensing Symposium ISRS 09, Nagpur, India,17-19 September, 2009.
- Harish Kumar GR and **Dharmendra Singh**, "Cluster based approach for enhancement of classification accuracy for the land cover classification of Roorkee region of MODIS images," Indian Society of Remote Sensing Symposium ISRS 09, Nagpur, India,17-19 September, 2009.
- Pramod Kumar Verma, Abhay N Gaikwad and **Dharmendra Singh**, "Study of wall effect for target detection with ultra wideband through wall imaging," in Proceedings of the Vaccum Electronics Devices and Applications VEDA-09, Banaras, India,8 -10 January 2009.
- **Dharmendra Singh**, Abhay N Gaikwad, Pramod Kumar Verma, and M J Nigam, "Study of wall effect for size determination in through wall imaging," International Radar symposium India 2009 (IRSI-09), Bangalore, India,2009.
- **Dharmendra Singh**, Pramod Kumar Verma, Abhay N Gaikwad, and M J Nigam, "Detection and identification of low dielectric material object in presence of metallic object using ultra wideband through wall imaging," International Radar symposium India 2009 (IRSI-09), Bangalore, India,2009.
- Triloki Pant, **Dharmendra Singh** and TanujaSrivastava, " A Novel Approach to Retrieve the Surface Parameters for SAR Images using Fractal Dimension Technique," National symposium on Advances in remote sensing technology and applications with special emphasis on microwave remote sensing, Ahmedabad, India, 18-20 December 2008.
- Chamundeeswari V V, **Singh D**, Singh K, and Wiesbeck W, " A novel approach to change detection technique with analysis and validation using probability distribution function," National symposium on Advances in remote sensing technology and applications with special emphasis on microwave remote sensing, Ahmedabad, India, 18-20 December 2008.
- Gunjan Mittal and **DharmendraSingh** , "Critical analysis of polarimetric PALSAR data for Land cover classification", International conference on recent advances in Microwave theory and application(Microwave-08), Jaipur, India, 21-24 November 2008.
- Triloki Pant, **Dharmendra Singh** and TanujaSrivastava, "Multi-Fractal Analysis of SAR Image for Unsupervised Classification," Microwave-08, Jaipur, India, 21-24 November 2008.
- Rishi Prakash and **DharmendraSingh** , " Microwave Sensitivity Analysis of Soil Texture at C-Band with BistaticScatterometer for Remote Sensing," Microwave-08, Jaipur, India, 21-24 November 2008.
- Gunjan Mittal and **Dharmendra Singh**, "Critical analysis of bistatic measurement of surface roughness at x-band for remote sensing", 37th COSPAR Scientific Assembly, Montreal, Canada, 13-20 July 2008.
- Harish Kumar G R and **Dharmendra Singh**, "A Pixel Purity Index and Curvelet based approach for the Fusion of ASTER and MODIS data for land cover classification," 37th COSPAR Scientific Assembly, Montreal, Canada , 13-20 July 2008.
- Triloki Pant and **Dharmendra Singh**, "Advanced Fractal Approach for Semi-unsupervised Classification of SAR Images," 37th COSPAR Scientific Assembly, Montreal, Canada, 13-20 July 2008.

- Chamundeeswari V V, **Singh D**, Singh K, and Wiesbeck W, “Change Detection module for New Orleans city of USA using Differential SAR Interferometry,” 37th COSPAR Scientific Assembly, Montreal, Canada, 13-20 July 2008.
- Rishi Prakash and **Dharmendra Singh**, “Sensitivity of Bistatic Microwave Scattering for Soil Texture at X-Band for Remote Sensing,” 37th COSPAR Scientific Assembly, Montreal, Canada, 13-20 July 2008.
- Chamundeeswari V V, **Singh D**, Singh K, and Wiesbeck W, “A critical analysis to generate change detection map using SAR interferometry for land subsidence monitoring of New Orleans city of USA,” International Geoscience and Remote Sensing Symposium: the next generation IGARSS '08, Boston, USA, 6-11 July 2008.
- **D. Singh**, N. K. Agrawal and R. Parida, “Effect of Different Regular Shapes with Multi-Layer Coating of Absorbing Materials for RCS Reduction at X- Band” International Conference on Radio Science, Jodhpur, India, 27-29th Feb, 2008.
- **Singh D**, Chamundeeswari V V, Saurabh Sharma and Hitesh Sharma, “An importance of Satellite based Radar images to monitor change detection on Earth surface,” Proceedings of International Conference on Radio Sciences (ICRS 2008) Jodhpur, India, 27-29 February 2008.
- G.Mittal and **D.Singh**, “Microwave response on surface roughness at X-band for remote sensing”, ICRS (International conference on radio science) Jodhpur, 27 -29 February, 2008.
- Triloki Pant, **D. Singh** and TanujaSrivastava, ”Advanced Fractal Approach for Unsupervised Classification of SAR Images: Useful Application for Planet Terrain Classification,” International Conference on Terrestrial Planets: Evolution through Time, PRL Ahmedabad, 22-25 January 2008.
- **D. Singh**, “An Efficient Electromagnetic Approach to Train the SVM for Depth Estimation of Shallow Buried Objects with Microwave Remote Sensing Data” International Geoscience and Remote Sensing Symposium, IGARSS'2007, Barcelona, Spain, 23-27 July 2007.
- R. S. Gautam, **D. Singh**, A. Mittal, “Detection of hotspots in NOAA/AVHRR images using principal component analysis and information fusion technique”, International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, vol. 36, Part 4, pp. 951-956, 2007.
- R. S. Gautam, **D. Singh**, A. Mittal, “Harmonic analysis of Time-Series NOAA/AVHRR images for hotspot detection and land features Classification”, International Geoscience and Remote Sensing Symposium, IGARSS'2007, Barcelona, Spain, 23-27 July 2007.
- Harish Kumar G R, **Dharmendra Singh**, Ankush Mittal, ”Fusion of MODIS, AVHRR and ASTER data using curvelet transform for land cover classification,” Geoscience and Remote Sensing Symposium, pp. 3082-3085, 23-28 July 2007.
- V V Chamundeeswari, **D. Singh** and K Singh “Unsupervised Land Cover Classification of SAR Images by Contour Tracing” International Geosciences and Remote Sensing Symposium, Barcelona, Spain, 23-27 July 2007.
- K. C. Tiwari, **D. Singh** and M. Arora, “Algorithm Overview Based on Image Processing with EM Techniques in X-band and GA Approach for Depth Estimation of Shallow Buried Dummy Land Mines”, pp. 332-336, IEEE Proceeding of Radar Conference, 2007.
- **D. Singh**, “Electromagnetic and Computational Approach to Detect Depth of Buried Object Using radar Remote Sensing Data at X-Band” Proceeding of WFMN07, pp. 98-103, Chemnitz, Germany, 2007.
- R. S. Gautam, **D. Singh**, A. Mittal, “A rough set classification based approach to detect hotspots in NOAA/AVHRR images”, IEEE International Conference on Intelligent Sensing and Information Processing, ICISIP-2006pp. 122-127, 2006, Bangalore, India, 2006.
- **D. Singh** and Sajin. P., “Application of SVM on satellite images to detect hot spots in Jharia coal field region of India” COSPAR-Beijing, China, 2006.

- **D. Singh** and A. Swami, "An Approach to Develop Information System for Radar Data to Identify the Shape of Shallow Buried Metallic Objects", ISPRS-Goa, 2006.
- V. V. Chamundeeswari, **D. Singh** and K. Singh, "Unsupervised Land Cover Classification of SAR Images Using Greedy Kernel PCA", International Conference on Microwave Remote Sensing, Jodhpur, Dec. 2006.
- KC Tiwari, **D. Singh** and M. Arora, "Development of polarimetric transforms for detection of shallow buried non-metallic landmines in microwave X-band region" International Conference on Microwave Remote Sensing, Jodhpur, Dec. 2006.
- **D. Singh**, "An Efficient Modeling with GA Approach to Retrieve Soil Texture, Moisture and Roughness from ERS-2 SAR Data" International Conference on Microwave Remote Sensing, Jodhpur, Dec. 2006.
- KC Tiwari, **D. Singh** and M. Arora, "Detection of Shallow Buried Non-Metallic Landmine in Microwave X-Band Region and Estimation of Shape Using ANN Based Model" National Conference on Microwave-06, Jaipur, 2006.
- R. S. Gautam, **D. Singh**, A. Mittal, "Detection of Hot Spots in NOAA/AVHRR Images using Principal Component Analysis and Information Fusion Technique" ISPRS-Goa, 2006.
- V. V. Chamundeeswari and **D. Singh**, "Computationally Efficient Extraction and Integration of Multi Wavelet Based Features for Segmentation of SAR Images" ISPRS-Goa, 2 International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences vol. 36, IV, pp 69-74, 2006.
- Harish Kumar and **D. Singh**, "Application of Binary Division Algorithm for Image Analysis and Change Detection to Identify the Hotspots in MODIS Images", ISPRS-Goa, vol. 36, Part 4, pp. 140-145, 2006.
- **D. Singh**, "Application of Satellite Data to Monitor the environmental Degradation", NSSS-2006, Trivandrum, India, 2006.
- Chamundeeswari V V, **Singh D**, and Singh K, "Unsupervised Land Cover Classification Via Feature Selection and Integration using PCA," 13 th Symposium in Earthquake engineering department, IITR vol. 2, 163-167, Roorkee, India, 18-20 December 2006.
- **D. Singh** and A. Swami, Shape of Buried Objects with Remote Sensing Approach, NSSS-2006, Trivandrum, India, 2006.
- **D. Singh**, Polarization Discrimination Approach to Retrieve Bare Soil Moisture at X-Band, IGARSS-05, 2005.
- **D. Singh**, R. Agrawal and K. P. Singh, "Burned Surface Detection Using NOAA/AVHRR Vegetation Indices for Jharia Coal Field" pp-31-33, ELECTRO-2005, BHU, Varanasi, India.
- **D. Singh**, "Space Technology Application for Agricultural Monitoring" pp-240-248, ELECTRO-2005, BHU, Varanasi, India, 2005.
- **D. Singh**, I. Herlin, J.P. Berroir, M. Simoes, and Enio. F. Silva, "Environmental Degradation Analysis Using NOAA/AVHRR Data" COSPAR, Paris, France –2004.
- R. Agrawal, **D. Singh** and K. P. Singh, "Identification of Cloudy Pixel Using NOAA/AVHRR Data" International Symposium for Clouds and its Detection, at IIT Kanpur, 2004.
- G. Costa, M. Simoes, S. Margareth, I. Herlin and J. P. Berroir, "A Methodology to support environmental degradation monitoring and analysis using AVHRR data" Anais XII Simpósio Brasileiro de Sensoriamento Remoto, Goiânia, Brasil, 16-21 abril 2005, INPE, p. 2941-2948, 2005.
- K. B. Khadhra, **D. Singh**, T. Boerner, D. Hounam and W. Wiesbeck, "Analysis of multi-frequency polarimetric data for assessment of bare soil roughness", pp-1405-1407, IEEE Conference, IGARSS-2003.
- **D. Singh**, I. Hajnsek, and K. Papathanassiou, "Semi-empirical approach and radar polarimetry for vegetation observation" POL-INSAR-2003.

- S. Margareth, **D. Singh**, H. L. C. Coutinho, U. Santos, "Remote Sensing and spatial Decision Support System for Environmental Degradation Monitoring" pp-2088-2090, IEEE Conference, IGARSS, 2003.
- **D. Singh**, K. P. Singh, I. Herlin, J. P. Berroir, S. Bouzidi, and F. Lahoche, "An approach to estimate the evapotranspiration using NOAA/AVHRR data, ISPRS-India, 2003.
- **D. Singh**, R. Prasad and K. P. Singh, "Microwave signature study of crop Paddy through remote sensing" ISPRS-2002.
- **D. Singh**, I. Herlin, J.P Berroir, S. Bouzidi, and F. Lahoche, "An approach to estimate the evapotranspiration over vegetative and bare field using NOAA/AVHRR data" NSSS-02, Bhopal, India, 25-28 Feb. 2002.
- **D. Singh**, Y. Yamaguchi, S. K Saran and K. P. Singh, "Monitoring of Crop Potato by X-Band Scatterometer" PIERS 2001, Japan.
- **D. Singh**, Y. Yamaguchi, H. Yamada and K. P. Singh, "Response of microwave on paddy by X-band scatterometer for remote sensing" Proceeding of PIERS, USA, 2000.
- **D. Singh**, Y. Yamaguchi, H. Yamada and K. P. Singh, "Effect of crop (wheat) height and crop covered soil moisture on microwave scattering for remote sensing" Proceeding of ISAP, Fukuoka, Japan, 22-25 Aug. 2000.
- S. K. Saran, R. Sao, S. K. Saran, and **D. Singh**, "Bistatic microwave scattering measurement of crop (sorghum) chlorophyll at X-band" Proceeding of ISAP, Fukuoka, Japan, 22-25 Aug. 2000.
- **D. Singh**, Y. Yamaguchi, H. Yamada, K. P. Singh, and O. P. Singh " Microwave interaction with crop biomass for remote sensing" Proceeding of SPIE, Sendai, Japan, 2000.
- **D. Singh**, S. K. Saran and R. Sao, " Effect of chlorophyll on microwave emissivity for remote sensing" Proceeding of ISRSE, Capetown, South Africa, March 2000.
- O. P. Singh, K. P. Singh, P. K. Mukharjee and **D. Singh**, "Microwave response of ladies finger" Proceeding of ISRS, Bhubaneswar, India, March 2000.
- **D. Singh**, "Frequency response of coal for remote sensing" Proceeding of ISRS, Bhubaneswar, India, March, 2000.
- **D. Singh**, S. K. Saran, and K. P. Singh, " Estimation of microwave scattering for crop (paddy) by ground based scatterometer "Proceeding of ISRS, Bangalore, India, pp.26-28, 1999.
- **D. Singh**, "Microwave response of soil moisture for remote sensing at X- band" Proceeding of PIERS, Taiwan, 1999.
- **D. Singh**, O. P. Singh, R. Prasad and K. P. Singh, " Combined effect of soil moisture and surface roughness on X-band for remote sensing" Proceeding of PIERS, Taiwan, 1999.
- **D. Singh**, O. P. Singh, R. Prasad and K. P. Singh, " Bistatic microwave remote sensing response of Gram at 9.5 GHz" Proceeding of ISRS, Bangalore, India, 1999.
- **D. Singh**, S. K. Saran and R. Sao, "Composite effect of crop (wheat) on microwave (X-band) for remote sensing" Proceeding of ICCEA, China, Nov.1999.
- **D. Singh**, S. K. Sharan, O. P. Singh, and K. P. Singh, " X-band microwave interaction with soil moisture" Proceeding of ISRS, Bangalore, India, pp. 36-38, 1999.
- **D. Singh**, and S. K. Saran "Estimation of crop (wheat) height for remote sensing" Proceeding of Indian Science Congress, Hyderabad, 1998.
- **D. Singh**, O.P. Singh and K. P. Singh, "Effect of microwave on gram for remote sensing" Proceeding of APSYM -CUSAT, Cochin, India, 1998.
- **D. Singh**, S. K. Sharan, Nasim and K. J. Narayan, "Response of crop (wheat) covered soil moisture for remote sensing" Proceedings of 84th Indian national science congress, New Delhi, India, 1997.
- **D. Singh**, P. K. Mukharjee, S. K. Sharma and K. P. Singh, "Microwave remote sensing of soil moisture and crop cover" Proceeding of PIERS, Hong Kong, 1997.
- **D. Singh**, "Microwave (X-band) response of soil moisture for remote sensing" Proceeding of ISRAMT, China, 1997.

- **D. Singh**, S. K. Sharma and K. P. Singh, "EM wave interaction with bare smooth ground surface soil moisture for remote sensing" Proceeding of PIER- Hongkong, 1997.
- **D. Singh**, S. K. Sharan and K. P. Singh, "Effect of broad leaf vegetation covered soil moisture on remote sensing" Proceeding ISRAMT, China, 1997.
- **D. Singh**, S. K. Sharma and K. P. Singh, "Microwave response to narrow leaf crop covered ground surface for remote sensing" Proceeding of ISRS, Hyderabad, India, 1997.
- **D. Singh**, S. K. Sharan and K. P. Singh, "Microwave response to broad leaf vegetation (spinach) and vegetation covered ground surface for remote sensing" Proceeding of ISRS, Hyderabad, India, 1997.
- **D. Singh**, S. K. Sharan and S. K. Sharma, "Effect of broad leaf crop (gram) covered soil moisture in remote sensing" Proceedings of 83rd Indian national science congress, 1996.
- **D. Singh** and S. K. Sharan, "Effect of vegetation (spinach) on vegetation covered soil moisture in remote sensing" Proceeding of EMI & DCI, Calcutta, India, 1996.
- **D. Singh**, S. K. Sharan and K.P. Singh "EM Wave interaction with bare smooth ground surface soil moisture for remote sensing" Proceeding of EMI & DCI, Calcutta, India, 1996.
- **D. Singh**, S. K. Sharma and K. P. Singh, " Microwave response to soil moisture from bare smooth ground surface" Proceeding of APSYM CUSAT, Cochin, India, 23-25 Oct.1996.
- **D. Singh**, S. K. Sharma and K. P. Singh, "Effect of vegetation biomass on microwave remote sensing" Journal of Advances in space research, U.K., 1996.
- **D. Singh**, "Response of soil moisture of microwave scattering for remote sensing" Proceeding of 10th M.P Young Scientist Congress, India Feb 28-March 2, 1995.
- **D. Singh**, A. G. Dongaonkar, K. P. Singh and S. K. Sharma, "Response of bare smooth ground surface soil moisture on remote sensing at X-band" Proceeding of Indian Science Congress, Calcutta, India, 1995.
- **D. Singh** and K. P. Singh, "Microwave response of broad leaf crop covered ground surface for remote sensing" Proceeding of ISRAMT, Ukraine, 11-16 Sept.1995.
- S. K. Sharma, P. K. Mukharjee, K. P. Singh and **D. Singh**, "Microwave signature of maize covered earth surface" Proceeding of APSYM-CUSAT, pp. 57-60, Cochin, India, Nov17-19, 1994.