Dr. Ashwani Kumar

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Qualifications:

Post. Doc., Department of Electrical and Computer Engineering, University of Central Florida, Orlando, Florida, USA.

Ph.D., Department of Electronic Science, University of Delhi, Delhi, India.

M.Tech., Department of Electronic Science, University of Delhi, Delhi, India.

Areas of Interest/Specialization:

Design and Development of RF and Microwave Passive Components such as Microstrip Filters, Dielectric Resonator-Based Filters, MIMO antenna, UWB antenna and Circularly Polarized Antennas, Wearable Textile Antennas, Artificial Magnetic Conductor (AMC), Electromagnetic Band Gap, Metasurface, and Metamaterial. 5G Mobile MIMO antennas, Metamaterial Microwave Absorber.

Experience:

Dr. Ashwani Kumar received his M.Tech in Microwave Electronics and Ph.D. degrees in Electronics in 2006 and 2014, respectively from the Department of Electronic Science, University of Delhi, Delhi, India. He was with the Department of Electrical and Computer Engineering, University of Central Florida, Orlando, Florida, U.S.A., for his Post-doctoral research from 2016 to 2017. Currently, he is an Assistant Professor at School of Engineering, Jawaharlal Nehru University, New Delhi, India **(24 Dec.2019 to till date)**. Earlier he was with the Department of Electronics, Sri Aurobindo College, University of Delhi, Delhi, India **(18 Sep. 2006 to 24 Dec.2019)**. His current research interests design and development of microwave passive components such as microstrip filters, dielectric resonator-based filters, MIMO antenna, UWB antenna and circularly polarized antennas using metamaterial. He is a Member of IEEE Microwave Theory and Techniques Society. He has published 73 Journal and Conference Technical Papers on Filters and Antennas and he has Two Book Chapters. He has filed and

published one Indian Patent. He has successfully completed two Delhi University Innovation Projects.

Dr. Kumar is serving as a reviewer in various renowned journals i.e. IEEE MTTs (USA), IEEE Access (USA), IET Microwave Antenna and Propagation (UK), IET Electronics Letters (UK), IEEE Transection on Industrial Electronics (USA), AEU, International Journal of Electronics and Communications, (Elsevier), Journal of Electromagnetic Waves and Applications, Taylor & Francis (UK), International Journal of Electronics Taylor & Francis (UK), and many more.

International Journal Publication (34)

1. Prashant Chaudhary, **Ashwani Kumar**, Pramod Kumar, B.K. Kanaujia & Amit Birwal, "Design of a New Metasurface and its Application for Linear to Circular Polarization Conversion" **International Journal of Electronics**, https://doi.org/10.1080/00207217.2020.1794050, **2020.** (Impact factor: 1.070)
2. Prashant Chaudhary, **Ashwani Kumar**, "Pattern Diversity MIMO 4G and 5G Wideband Circularly Polarized Antenna With Integrated LTE Band for Mobile Handset" Journal of **Progress In Electromagnetic Research- M, Vol. 89, 111–120, 2020.** ISSN: 1937-8726, 89, 111, 2020. (Impact factor: 2.193)
3. Bandar Hakim, **Ashwani Kumar**, Jawad Yousaf, Muntasir Sheikh, Hatem Rmili, and Raj Mittra, "Performance Enhancement of Array Antennas using Metasurface Superstrates", Wiley, **International Journal of Numerical Modelling: Electronic Networks, Devices and Fields**, Article ID:JNM2705,DOI: 10.1002/jnm.2705,ID: 16622272, 2019. (Impact factor: 0.795)
4. Prashant Chaudhary, **Ashwani Kumar**, and B. K. Kanaujia, "A low-profile wideband circularly polarized MIMO antenna with pattern and polarization diversity", **Cambridge, International Journal of Microwave and Wireless Technologies**, pp. 1–7. https://doi.org/10.1017/, 13 Sep. 2019. (Impact factor: 0.976)
5. Prashant Chaudhary, **Ashwani Kumar**, "Compact Ultra-wideband Circularly Polarized CPW-fed Monopole Antenna", **AEU -International Journal of Electronics and Communications,** pp-137-145, vol.107, May 2019. (Impact factor: 2.924)
6. Jugul Kishor, Binod K. Kanaujia, Santanu Dwari & **Ashwani Kumar**, "Balanced bandpass filter using TE01δ-mode dielectric resonator" **Electromagnetics, Taylor & Francis**, DOI: 10.1080/02726343.2019.1595384, p.p.1-8, 2019. (Impact factor: 0.609)

7. K. Srivastava , **Ashwani Kumar**, Prashant Chaudhary, Binod K. Kanaujia,Santanu Dwari,Anand K. Verma, Karu P. Esselle, Raj Mittra, "Wideband and high-gain circularly polarised microstrip antenna design using sandwiched metasurfaces and partially reflecting surface", **IET Microwaves, Antennas & Propagation,** doi: 10.1049/iet-map.2018.5061 www.ietdl.org, Vol. 13, Issue 3, pp. 305 – 312, 27 Feb. 2019**.** (Impact factor: 2.036)
8. Kunal Srivastava, **Ashwani Kumar**, B.K Kanaujia, S.Dwari, Sachin Kumar " Low Profile Coupling Feed Circularly Polarized Antennas for WLAN Applications", **International Journal of RF and Microwave Computer-Aided Engineering,** https://doi.org/10.1002/mmce.21525, vol.29, p.p.1-10, 2018. (Impact factor: 1.472)
9. **Ashwani Kumar**, A.K. Verma, "Comparative performance of some polynomial based lowpass filters for microwave/digital transmission applications", **International Journal of Electronics Taylor & Francis**, pp.1-23, https://doi.org/10.1080/00207217.2018.1494338, 2018. (Impact factor: 1.070)
10. Kunal Srivastava, **Ashwani Kumar**, B.K Kanaujia, S.Dwari, Sachin Kumar, **"**Low Profile Single Feed Monopole Antenna for Quad-Band Circularly Polarized Applications", **International Journal of Electronics, Taylor & Francis,** https://doi.org/10.1080/00207217.2018.1525771, Pages 318-331, vol.106, 2018. (Impact factor: 1.070)
11. Kunal Srivastava, **Ashwani Kumar**, B.K Kanaujia, S.Dwari, Sachin Kumar " A CPW-Fed UWB MIMO Antenna with Integrated GSM Band and Dual Band Notches" **International Journal of RF and Microwave Computer-Aided Engineering,** https://doi.org/10.1002/mmce.21433,p.p.1-10, vol.29, oct. 2018. (Impact factor: 1.472)
12. Kunal Srivastava, **Ashwani Kumar**, B.K Kanaujia, S.Dwari, Sachin Kumar "Multiband Integrated Wideband Antenna for Bluetooth/WLAN Applications" **AEU -International Journal of Electronics and Communications,** https://doi.org/10.1016/j.aeue.2018.03.027, vol. 89 pp. 77–84 p.p. 77-84, March 2018. (Impact factor: 2.924)
13. Kunal Srivastava, **Ashwani Kumar**, B.K Kanaujia, S.Dwari, A.K Verma, K.P Esselle, Raj Mittra" Integrated GSM-UWB Fibonacci-type Antennas with Single, Dual and Triple Notched Bands" **IET Microwave and Antenna Propagation**, Vol. 12 Iss. 6, pp. 1004-1012 doi: 10.1049/iet-map.2017.0074, www.ietdl.org, May 2018. (Impact factor: 2.036)
14. Kunal Srivastava, **Ashwani Kumar**, B. K. Kanaujia and S. Dwari, "Integrated Amateur Band and Ultra-Wide Band Monopole Antenna with Multiple Band-Notched", **International**

Journal of Electronics, Taylor & Francis, Vol.105, Issue 5,pp.741-755, DOI: 10.1080/00207217.2017.1382013, Aug.2017. (Impact factor: 1.070)

15. Jugul Kishor, Binod K. Kanaujia, Santanu Dwari, **Ashwani Kumar**, "Design of Differential Mode Bandpass Filter with Common Mode Suppression Using Ring Dielectric Resonator", **International Journal of Microwave and Wireless Technologies**, doi: 10.1017/S1759078716001306, Vol. 9, Issue 5, pp. 1029-1035, June 2017. (Impact factor: 0.976)
16. Jugul Kishor, Binod K. Kanaujia, Santanu Dwari, **Ashwani Kumar**, "Narrow-Band Bandpass Filter For Wireless Communication System" **Frequenz, Journal of RF-Engineering and Telecommunications,** DOI: 10.1515/freq-2016-0090, vol.71, issue 7-8, pp.1-6, Oct. 2016. (Impact factor: 0.933)
17. **Ashwani Kumar**, A.K. Verma, Qingfeng Zhang, Parmod Kumar, P.P.Singh, R.P.Rishishwar, Abhishek Singh, " Design of Single-Band to Hexa-Band Bandstop Filters" **Progress In Electromagnetics Research C**, Vol. 68, 31–44, 2016. (Impact factor: 2.322)
18. **Ashwani Kumar**, A.K. Verma, Qingfeng Zhang, "Compact Triple-band Bandstop Filters Using Embedded Capacitors" **Progress In Electromagnetics Research Letters**, Vol. 63, 15–21, Aug. 2016. (Impact factor: 2.322)
19. Jugul Kishor, Binod K. Kanaujia, Santanu Dwari, **Ashwani Kumar**, " Bandpass filter using dielectric resonator with transmission zeros" **Microwave and Optical Technology Letters** ,Volume 58, Issue 7,Pages 1583–1586, July 2016. (Impact factor: 0.933)
20. Kunal Srivastava, **Ashwani Kumar**, A.K.Verma, Q. Zhang ,B. K. Kanaujia and S. Dwari, "Integrated GSM and UWB Fractal Monopole Antenna with Triple Notches" **Microwave and Optical Technology Letters** ,Vol.58, Issue 10, Pages 2364–2366, Oct. 2016. (Impact factor: 0.933)
21. Kunal Srivastava, **Ashwani Kumar**, Binod K. Kanaujia, "Compact Penta-Band Microstrip Antenna" **Microwave and Optical Technology Letters,** Vol. 58, Issue 4 Pages 836–838, April 2016. (Impact factor: 0.933)
22. Kunal Srivastava, **Ashwani Kumar**, Binod K. Kanaujia, "Design of Compact Penta-Band and Hexa-Band Microstrip Antennas" **Frequenz, Journal of RF-Engineering and Telecommunications,** Vol. 70, Issue 3-4, Pages 101–111, DOI: 10.1515/freq-2015-0174, Feb.2016.(Impact factor: 0.933)
23. **Ashwani Kumar**, A.K.Verma, "Design of Bessel low-pass filter using DGS for RF/ microwave applications" **International Journal of Electronics, Taylor & Francis**, Vol. 103, Issue 9, pp.1460-1474, Dec.2015. (Impact factor: 1.070)

24. **Ashwani Kumar**, A.K.Verma, Nainu.P.Chaudhari, "DGS Based Legendre Low-Pass Filters for RF/Microwave" **WSEAS Transactions on Communications,** Greece pp.80-93, Vol.13, 2014**.**
25. **Ashwani Kumar**, A.K.Verma, Nainu.P.Chaudhari, "Design of Bessel Low- Pass Filter Using DGS with Improved Characteristics for RF/ Microwave Applications" **Journal of circuits, systems, and computers,** Volume 23, Issue 09, pp.1-25, Oct. 2014. (Impact factor: 0.595)
26. **Ashwani Kumar**, A.K.Verma, "DGS based Chebyshev Low Pass Filter for Wireless Communication" **IETE Journal of Research, India,** Vol. 59, Issue: 4, Page: 433-437, Sep 2014. (Impact factor: 0.793)
27. A.K.Verma, Nainu.P.Chaudhari, **Ashwani Kumar**, "Improved Performance Step Impedance Lowpass Filter" **AEU, International Journal of Electronics and Communications,** Elsevier, Vol. 67, Issue 9, , Pages 761–770, Sep. 2013. (Impact factor: 2.924)
28. A.K.Verma, Nainu.P.Chaudhari, **Ashwani Kumar** "High Performance Microstrip Transverse Resonance Lowpass Filter" **Microwave and Optical Technology Letters,** Vol. 55, Issue 5, pages 1149–1152, May 2013. (Impact factor: 0.933)
29. Anand K. Verma, Adel Abdel-Rahman, **Ashwani Kumar**, Atallah Balalem and Abbas Omar, "New Compact Dual-Band Bandstop Filter", **International Journal of Electronics, Taylor & Francis,** vol. 100, No. 4, pp. 497-507, Oct. 2012. (Impact factor: 1.070)
30. **Ashwani Kumar**, Nainu Priya Chaudhari, A.K.Verma, "Compact Wideband-Bandpass Filter with Notch using Modified Rectangular Ring Resonator", **International Journal of Wired and Wireless Communications** ,Vol.2, Issue 1, Oct. 2012. (Impact factor: 0.050)
31. A.K.Verma, **Ashwani Kumar** "Design of Low Pass Filters using Some Defected Ground Structures", **AEU, International Journal of Electronics and Communications Elsevier,** volume 65, Issue 10, Pages 864-872, Oct. 2011. (Impact factor: 2.924)
32. A.K.Verma, **Ashwani Kumar**, "Synthesis of Microstrip Low pass Filter Using Defected Ground Structures", **IET Microwaves, Antennas & Propagation**, volume: 5 Issue: 12, page(s): 1431 - 1439. Sep. 16 2011. (Impact factor: 2.036)
33. Y.K. Awasthi, Himanshu Singh, **Ashwani Kumar**, Paramjeet Singh, A.K.Verma, "Accurate CAD-Model Analysis of Multilayer Microstrip Line on Anisotropic Substrate", **Journal of Infrared, Millimeter, and Terahertz Waves**, vol. 31, Issue 3, pp. 259-270, Mar. 2010. (Impact factor: 1.762)
34. A.K.Verma, **Ashwani Kumar**, "Novel Design of Compact Low Pass Filter Using Defected Ground Structure", **International Journal of Microwave and Optical Technology,** ,Vol. 4, No. 5, pp. 276-282, Sep. 2009. (Impact factor: 0.157)

International/National conference papers (39)

[1] Prashant Chaudhary, **Ashwani Kumar**, Avanish Yadav **"High Gain Wideband Substrate Integrated (SIW) Slot Antenna with Horn Aperture for 5G",** 2020 URSI Regional Conference on Radio Science (URSI-RCRS), **DOI:** 10.23919/URSIRCRS49211.2020.9113555, **12-14 Feb. 2020.**

[2] Avanish Yadav, **Ashwani Kumar**, Prashant Chaudhary, "**High Gain and Wideband Antenna using Metasurface Horn and Metasurface Superstrate:,** 2020 URSI Regional Conference on Radio Science (URSI-RCRS), **DOI:** 10.23919/URSIRCRS49211.2020.9113560, **12-14 Feb. 2020.**

[3] Ashwani Kumar, Prashant Chaudhary, Raj Mittra, **"Design of Ultra-Wideband Circularly Polarized CPW-Fed Antenna with a Metasurafce Substrate",** 2019 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, Atlanta, GA, USA, USA, 7-12 **July 2019.**

[4] **Ashwani Kumar** and Raj Mittra, **"Gain and Side Lobe Level Enhancement of Array Antennas Using Metasurface Superstrates",** 2018 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting 8-13 July 2018 Boston, Massachusetts, USA.

[5] Maifuz Ali, Raj Mittra **and Ashwani Kumar "A Robust and Systematic Approach to Multiband Antenna Design for Operation on Complex Platforms under Geometry Modification",** 2018 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting 8-13 July 2018 Boston, Massachusetts, USA.

[6] **Ashwani Kumar,** Prashant Chaudhary **"Pattern Diversity and Polarization Diversity Wide Band Circularly Polarized MIMO Antenna"**, 2019 URSI Asia-Pacific Radio Science Conference (AP-RASC), New Delhi, India,09 - 15 March 2019.

[7] **Ashwani Kumar,** Prashant Chaudhary and Raj Mittra **"Quadrilateral-Shaped Wideband Circularly Polarized CPW-Fed Monopole Antenna",** 2019 URSI Asia-Pacific Radio Science Conference (AP-RASC), New Delhi, India,09 - 15 March 2019., New Delhi, India,09 - 15 March 2019.

[8] **Ashwani Kumar** and Raj Mittra, **"Wide-Band Circularly Polarized Antenna using Partially Transmitting Surface"**, 2017 IEEE International Symposium on Antennas and

Propagation & USNC/URSI National Radio Science Meeting, 9-14 July 2017, San Diego, Claifonia,USA.

[9] Raj Mittra and **Ashwani Kumar,"Design of Low-cost Phase-Shifters for Circularly Polarized Antenna elements using Partially Transmitting Surfaces**", 2017 IEEE International Symposium on Antennas and Propagation & USNC/URSI National Radio Science Meeting, 9-14 July 2017, San Diego, Claifonia,USA..

[10] Raj Mittra and **Ashwani Kumar**,"**Study of Antenna Systems located on Complex Platforms by using Characteristic Mode Analysis and Related Techniques**". 2017 IEEE International Symposium on Antennas and Propagation & USNC/URSI National Radio Science Meeting, 9-14 July 2017, San Diego, Claifonia,USA.

[11] **Ashwani Kumar and Raj Mittra, "Wideband Circularly Polarized Antenna and Low-cost Phase-Shifters using Partially Transmitting Surface",** 2017 International Symposium on Antennas and Propagation (ISAP) , 30 Oct.-2 Nov. 2017 Thailand.

[12] Raj Mittra and **Ashwani Kumar,"Antenna Placement on Complex Platforms by using Characteristic Mode Analysis and Characteristic Basis Function Technique",** 2017 International Symposium on Antennas and Propagation (ISAP) , 30 Oct.-2 Nov. 2017 Thailand.

[13] **Ashwani Kumar** and Raj Mittra, **"Performance Enhancement of Array Antennas using Partially Transmitting Surface",** 2017 IEEE Applied Electromagnetics Conference (AEMC), 19-22 Dec. 2017, Aurangabad, Maharashtra.

[14] Naveen Kr. Maurya ; Monika Tulsyan ; Rajarshi Bhattacharya ; **Ashwani Kumar "Design and near field analysis of compact CPW-fed printed pseudo-monopole driven Yagi-type pattern diversity antenna"** 2017 IEEE Applied Electromagnetics Conference (AEMC), 19-22 Dec. 2017, Aurangabad, Maharashtra.

[15] Hari Singh, Kunal Srivastava, Neha Verma, **Ashawni kumar**, and Binod K. Kanaujia" **Compact Wide Band Microstrip Patch Antenna For WiMax/WLAN Bands**" Nanofim 2017 Gautam Budha University, India**.**

[16] Hari Singh, Binod K. Kanaujia, Neha Verma, Kunal Srivastava and **Ashwani Kumar" Wide Band Circularly Polarized Antenna with Anisotropic Meta-Material Ground Plane**"UPCON 2017 Mathura, India dated-26-28 oct 2017.

[17] Hari Singh, Kunal Srivastava, Neha Verma, **Ashawni kumar**, Binod K. Kanaujia " **Design and Analysis of Comapct Slotted Ground Wide Band Microstrip Antenna"** IRF International Conference New Delhi p.p.14-17, 18th June 2017

[18] Kunal Srivastava, **Ashwani Kumar**, Binod K. Kanaujia, Santanu Dwari, **"Zeroth Order Resonance Based Multi-Band Antenna"** ,Sixth International Conference on Advanced Computing & Communication Technologies (ACCT), 2016, Rohtak, India.

[19] Kunal Srivastava, **Ashawni Kumar**, Binod K. Kanaujia, Santanu Dwari, A.K Verma, Mukul Yadav,Lalita Josyula, S Chamarthi " **MIMO based Multi Band Antenna for C-band,X-band,,K-bandand Ku-band wireless Communication**" at 8th EAI International Conference on Wireless and Satellite Systems (formerly PSATS)SEPTEMBER 19–20, 2016, Cardiff, Great Britain.

[20] Kunal Srivastava, **Ashwani Kumar**, A.K.Verma, Qingfeng Zhang **,"Quad-Band Polarization Independent Ultra-Thin Microwave Absorber Using Metamaterial" 39th National Systems Conference 2015, Dec. 14-16, Shiv Nadar University, India.**

[21] Kunal Srivastava, **Ashwani Kumar**, Binod K. Kanaujia **,"Integrated 23-Cm and UWB Antenna with Dual Notched Characteristics"** IEEE International Microwave and RF Conference (IMaRC), Dec. 10-12, 2015, Hyderabad, India.

[22] Ashwani Kumar, Kunal Srivastava, Y.K.Awasthi, A.K.Verma **"Very Sharp Compact Microstrip Lowpass Filter" ,Fifth International Conference on Advanced Computing & Communication Technologies (ACCT), 2015, Rohtak India.**

[23] Kunal Srivastava, **Ashwani Kumar**, Raj Kumar, A.K.Verma **"Compact UWB Antenna Using Chebyshev Coefficient Distribution**" ,Fourth International Conference on Advanced Computing & Communication Technologies (ACCT), 2014, Rohtak india http://doi.ieeecomputersociety.org/10.1109/ACCT.2015.140

[24] Kunal Srivastava, **Ashwani Kumar**, Raj Kumar, A.K.Verma **"Reverse G-Shape Antenna For UWB with Notch"** 3rd IEEE International Advance Computing Conference (IACC-2013), Feb 22 to 23rd 2013, Ghaziabad ,India.

[25] **Ashwani Kumar**, Nainu Priya Chaudhari, A.K.Verma **" Wideband-Bandpass Filter with Notch using Modified Rectangular Ring Resonator"** International Conference on Microwave and Photonics (ICMAP 2013) , December 13-15, 2013 ,Indian School of mines, Dhanbad, India.

[26] **Ashwani Kumar**, Nainu Priya Chaudhari, A.K.Verma, **"Compact Legendre Low-Pass Filters for Microwave Applications"** International Microwave and RF Conference, (IMARC 2013), IIT Delhi, India.

[27] Nainu Priya Chaudhari, **Ashwani Kumar**, A.K.Verma, **"Ultra Sharp Compact Folded Lowpass Filter"** International Microwave and RF Conference, (IMARC 2013), 14 Dec - 16 Dec 2013 IIT Delhi, India.

[28] Kunal Srivastva, **Ashwani Kumar**, and A. K. Verma, **"Compact UWB Antenna Using Chebyshev Coefficient Distribution"** 4th IEEE Applied Electromagnetics Conference, Dec-2013, at KIIT University, Bhubaneswar, India (AEMC 2013).

[29] **Ashwani Kumar**, A.K.Verma, Nainu Priya Chaudhari **"Constant-k and m-Derived Composite Low Pass Filter using Defected Ground Structure**" International Conference on Advanced Computing & Communication Technologies (ACCT12), January 7-8, 2012 in Rohtak, India.

[30] Nainu Priya Chaudhari, **Ashwani Kumar**, A.K.Verma, **"Transverse Resonance Phenomena Based Low Pass Filter"** International Conference on Advanced Computing & Communication Technologies (ACCT12),January 7-8,2012 in Rohtak, India.

[31] **Ashwani Kumar**, A.K.Verma **"Extraction of T and PI Circuit Models of Microstrip Line With Defected Ground Structure"** International Conference on Communications and Signal Processing ICCSP-2011, 10 Feb - 12 Feb 2011, Calicut, Kerla, India.

[32] **Ashwani Kumar**, A.K.Verma **"Control of Stop Band Using Spur Line Resonators of DGS Based Low Pass Filter"** IEEE Students' Technology Symposium 14-16 Jan 2011. IEEE Student Branch at IIT Kharagpur and IEEE Kharagpur Section. India.

[33] **Ashwani Kumar**, A.K.Verma **"Techniques to Improve Sharpness and Stop Band Rejection of Defected Ground Structure Based Low Pass Filter"** IEEE Applied Electromagnetics Conference AEMC and IEEE Indian Antenna Week IAW, December 18-22, 2011 in Kolkata, India.

[34] **Ashwani Kumar**, A.K.Verma, **"Design of Compact Bessel Low Pass using Defected Ground Structure",** IEEE Asia Pacific Microwave Conference (APMC), Japan, 07 Dec - 10 Dec2010.

[35] **Ashwani Kumar**, A.K.Verma **"PI and T Circuit Models of CPW with Defected Ground Structure"**6th International Conference on Microwaves, Antenna, Propagation and Remote Sensing ICMARS – 2010, 14th - 17th December**, 2010**. Jodhpur, India.

[36] **Ashwani Kumar** and A.K. Verma, **"Design of Compact Seven Pole Low Pass Filter using Defected Ground Structure."** IEEE International Conference on Emerging Trends in Electronics and Photonic devices and systems, ELECTRO '09 Varanasi, India, pp.1-4, Dec. 22-24, 2009.

[37] **Ashwani Kumar**, A.K.Verma, **"Comparative Study of Some Defected Ground Structures",** 12th International Symposium on Microwave and Optical Technology (ISMOT), Dec. 16-19, New Delhi, India, 2009.

[38] A.K.Verma, **Ashwani Kumar "Design of Compact Five Pole Low Pass Filter using Defected Ground Structure ",** IEEE International Conference on Recent Advances in Microwave Theory and Applications. Jaipur, India, pp. 247-248, Nov. 21-24, 2008.

[39] **Ashwani Kumar**, Nainu Priya Chaudhari, A.K.Verma **"Wideband Bandpass Filter using SIR"** First National Conference on Recent Developments in Electronics (NCRDE 2013), Jan 18-20, 2013, Department of Electronic Science, University of Delhi South Campus, New Delhi, India.

Book Chapters

Book Name: Developments in Antenna Analysis and Design:2 Volume Set, Year 2018, Institution of Engineering and Technology, ISBN:9781785619925, **Book DOI:** 10.1049/SBEW543G

Chapter-2 Design of Antennas Mounted on Complex Platforms using the characteristic mode (CM) and Characteristic Basis (CB) Function Method.

Chapter-10 Meta-Atoms and Artificially Engineered Materials for Antenna Applications

Patents

Indian Patent (Filed and Published): Application No. 201811011902

Workshop attended

[1] Winter School on Broadband Microwave Systems and Communications, UGC Networking Resource Centre in Physical Sciences, **Institute of Radio Physics and Electronics, University of Calcutta,** Feb. 9-27,2009

[2] National Seminar and Workshop on Integrating Multiple Technologies to Support Teaching and Learning, **Maharaja Agarshen College, Delhi University Sep. 24-26, 2009**

[3] Short Course on Fundamentals and Applications of Metamaterials, Electrical Engineering, **IIT Kanpur, April 4-10, 2015.**