

DR. IRFAN AHMED

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Department of Physics
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EDUCATION

- **PhD** (Electrical Engineering) **2011**
Michigan Technological University, Houghton MI, USA.
- **M. E.** (Electrical Engineering) **2005**
NED University of Engg. & Tech. Karachi Pakistan
- **B. E.** (Electrical Engineering) **1994**
NED University of Engg. & Tech. Karachi Pakistan

EXPERIENCE

Academic:

- NED University of Engg. & Tech. Karachi Pakistan
Associate Professor 2012 - to date
Develop Syllabus, Administer Labs, Supervise PhD /Master's Thesis
- NED University of Engg. & Tech. Karachi Pakistan
Assistant Professor 2005-2012
- NED University of Engg. & Tech. Karachi Pakistan
Lecturer 2001-2005

Industrial / Administrative:

- NED University of Engg. & Tech. Karachi Pakistan
Chairman Department of Physics 2020 to date
- NED University of Engg. & Tech. Karachi Pakistan
Controller of Examination 2015- 2017
- Black & Veatch International (US based), Karachi
Electrical Engineer 1996-2001
Startup & Commissioning of Power Plant E & I Equipment
- Zelin (Pvt) Ltd.
Electrical Engineer 1994-1996
Estimation, Costing, and Bidding of Turnkey Projects

PUBLICATIONS

- See attached List, or <https://orcid.org/0000-0003-3629-5034>

GRANTS

- MOST Endowment Fund
 - PI, Routing Reliability Improvement in IoT-based-MANET, 3.0 Million, 2020
- Higher Education Commission-NRPU
 - CO-PI, Flexible Testbed for device-to-device (D2D) communication in 5G cellular Network- Project Number: 6054, 2018-19
- Funded by National Technology Fund Program-IGNITE
 - Smart Metering Using Power Line Communication 2020
 - Automatic Controlling and Monitoring of Underwater Environment System **2019**
- Funded by National Grassroots ICT Research Initiative of National ICT R&D Fund
 - Design & Fabrication of Wireless System Based Smart Wheelchair **2016**
 - Design & Fabrication of Wearable Antenna for BAN **2015**
 - Design & Fabrication of a Patch Antenna on Non-Conventional substrate **2013**

POSTGRAD STUDENT SUPERVISION

Degree / Role	Supervised	Co-supervised	Under Supervision	Under Co-Supervision
PhD	03	01	2	01
Master's Thesis	08	02	07	01

AWARDS

- Dean's Award of Outstanding Scholarship, Michigan Tech USA **2011**
- Doctoral Finishing Fellowship, Michigan Tech USA **2011**
- Faculty Development Fellowship for PhD, NED University Karachi **2007**

COMMUNITY WORK

- Member “National Curriculum Review Committee” of Higher Education Commission Pakistan for the subject of Telecom Engineering, **2014-15**
- Member “National Curriculum Review Committee” of Higher Education Commission Pakistan for the subject of Telecom Systems, **2013-14**
- Member Technical Committee of Pakistan Standard Quality Control Authority for “Telecommunications and Information Exchange between Systems (I.C.T-TC-1)” **2013**
- Reviewer for research work in the following journals
 - IEEE (Antennas and Wireless Propagation Letters, Access)
 - Ad Hoc & Sensor Wireless Networks
 - Progress in Electromagnetic Research (PIER, PIER B,C,M, PIER Letters)

RESEARCH INTERSESTS

- Antenna Design, Electromagnetic Compatibility, Wireless Channel Modeling, Wireless Local Positioning System, WSNs, Green Energy / Alternate Energy.

LANGUAGES

- Urdu, English, Sindhi, Punjabi, Arabic

MEMBERSHIPS

- Life Member, Pakistan Engineering Council
- Fellow Pakistan Academy of Engineering
- Member American Physical Society

LIST OF PUBLICATIONS BY DR. IRFAN AHMED

Journal Publications: HEC / ISI Master List/ JCR

#	Description	HEC Category / otherwise
16	Mariam, Hira, Irfan Ahmed , Sundus Ali, Muhammad Imran Aslam, and Ikram Ur Rehman. 2022. "Performance of Millimeter Wave Dense Cellular Network Using Stretched Exponential Path Loss Model" <i>Electronics</i> 11, no. 24: 4226. https://doi.org/10.3390/electronics11244226	X/JCR
14	Jafri, Syed Talib Abbas, Irfan Ahmed, and Sundus Ali. 2022. "Queue-Buffer Optimization Based on Aggressive Random Early Detection in Massive NB-IoT MANET for 5G Applications" <i>Electronics</i> 11, no. 18: 2955. https://doi.org/10.3390/electronics11182955	W/JCR
13	Sundus Ali, Muhammad Imran Aslam, Irfan Ahmed , "Impact of fractional power control on downlink uplink decoupled-based HetNets" in varying path loss exponent environment. <i>Trans Emerging Tel Tech.</i> 2022; e4491. doi:10.1002/ett.4491	X / JCR
12	Mumtaz, T., Muhammad, S., Aslam, M.I. and Irfan Ahmed, "Inter-slice resource management for 5G radio access network using markov decision process". <i>Telecommunication Systems, Springer</i> (2022). https://doi.org/10.1007/s11235-021-00877-9	W / JCR
11	A K M Shafaat Ali and Irfan Ahmed, "Electrical characterization of glass fiber reinforced polymer ({GFRP}) composites for future metasurface antenna applications", <i>Materials Research Express</i> , ISSN 2053-1591 Volume 8, Number 6, 02 June 2021, https://doi.org/10.1088/2053-1591/ac02fe	X/JCR
10	Hira Mariam, Irfan Ahmed, Muhammad Imran Aslam, "Coverage probability of uplink millimeter wave cellular network with non-homogeneous interferers' point process" <i>Physical Communication</i> , Volume 45, 16 January 2021, 101274, ISSN 1874-4907, https://doi.org/10.1016/j.phycom.2021.101274	W / JCR
9	Sundus Ali, Muhammad Imran Aslam, Irfan Ahmed <i>et al.</i> , "Analysis of the decoupled uplink downlink technique for varying path loss exponent in multi-tier HetNet." <i>Telecommunication Systems, Springer</i> , Issue 4/2020 Print ISSN: 1018-4864, Electronic ISSN: 1572-9451 https://doi.org/10.1007/s11235-020-00661-1	W / JCR
8	Sundus Ali, Muhammad Imran Aslam, Irfan Ahmed, "Uplink coverage probability and spectral efficiency for downlink uplink decoupled dense heterogeneous cellular network using multi-slope path loss model". <i>Telecommunication Systems, Springer</i> , Issue 4/2019 Print ISSN: 1018-4864 ,Electronic ISSN: 1572-9451,	W / JCR

7	Sundus Ali, Muhammad Imran Aslam, Irfan Ahmed, "Analysis of Downlink Uplink Decoupled Dense Heterogeneous Cellular Network based on User Association using Multi-Slope Path Loss Model," <i>Advances in Electrical and Computer Engineering</i> , vol.19, no.2, pp.45-52, 2019, doi:10.4316/AECE.2019.02006	X / JCR
6	Tahniyat Aslam, Irfan Ahmed, Muhammad I. Aslam, Syed M. Usman Ali, Tahir Malik, "Direction of Arrival Estimation in the presence of Scatterer in noisy environment", <i>Advanced Electromagnetics</i> , Vol. 6, no. 3, pp.33-40, 2017.	Y/ISI
5	Muhammad Sohail Ibrahim, Irfan Ahmed, Muhammad I. Aslam, Muhammad Ghazaal, Muhammad Usman, Kamran Raza and Shujaat Khan, "A Low Cost FPGA based Cryptosystem Design for High Throughput Area Ratio" <i>International Journal of Advanced Computer Science and Applications (IJACSA)</i> , Vol. 8, no. 2, pp-385-393, 2017.	/ISI
4	Muhammad Usman, Irfan Ahmed, Muhammad I. Aslam, Shujaat Khan, and S. M. Usman Ali, "SIT: A Lightweight Encryption Algorithm for Secure Internet of Things" <i>International Journal of Advanced Computer Science and Applications (IJACSA)</i> , Vol. 8, no. 1, pp-402-411, 2017.	/ISI
3	Irfan Ahmed and Warren F. Perger" Effect of Ground on Antenna Mutual Impedance for DOA Estimation Using Dipole Arrays" <i>Progress in Electromagnetics Research (PIER C)</i> , Vol. 46, page 179-185, 2014	X/Scopus
2	Irfan Ahmed and Warren F. Perger "Direction Finding in the Presence of Near Zone Resonant Size Scatterers", <i>Progress in Electromagnetics Research (PIER B)</i> , Vol. 56, page 219-234, 2013	Y/Scopus
1	Irfan Ahmed, Warren F. Perger, and Seyed A. Zekavat, "Effects of Ground Constituent Parameters on Array Mutual Coupling for DOA Estimation," <i>International Journal of Antennas and Propagation</i> , vol. 2011, Article ID 425913, 5 pages, 2011. doi:10.1155/2011/425913	W/JCR

Journal Publications: Peer Reviewed Journals

6	Mariam, Hira, Irfan Ahmed , and Muhammad Imran Aslam. 2022. "Impact of Multiple Beams and Mobility-Based Beam Alignment Error on Millimeter Wave Communication" <i>Engineering Proceedings</i> 20, no. 1: 42. https://doi.org/10.3390/engproc2022020042
5	Um e Rabab, Irfan Ahmed , Muhammad Imran Aslam and Muhammad Usman, "FPGA Implementation of Secure Internet of Things (SIT) Algorithm for High Throughput Area Ratio", <i>International Journal of Future Generation Communication and Networking</i> Vol. 11, No. 5 (2018), pp.63-72 http://dx.doi.org/10.14257/ijfgcn.2018.11.5.06 ESCI / ISI Master List
4	Akhtar Saeed, Irfan Ahmed , Muhammad Imran Aslam, and Tahir Malik , " Improving Energy Efficiency of Wireless Sensor Network through Optimum Selection of Cluster Heads ", <i>BUJICT Journal</i> , Volume 10, Issue 1, June 2017, pp. 29-37.
3	Sana Aijaz, Irfan Ahmed , Muhammad I. Aslam, and Syed M. Usman Ali, "Spectrum Sensing in Cognitive Radios - Techniques, Issues and Challenges," <i>International Journal of Information and Communication Technology Trends</i> , Vol. 2, No. 1, pp. 1-4, 2015.
2	Immad Girach, Muhammad I. Aslam, Irfan Ahmed , Syed M. Usman Ali and Muhammad Khalid, "Photonic Band Gap Materials- Theory, Techniques and Application," <i>Bahria University Journal of Information & Communication Technologies</i> , Vol. 8, No. 1, pp. 126-129, 2015.
1	Akhter Saeed, Irfan Ahmed , "Wireless Sensor Networks – A Comprehensive Study ," <i>International Journal of Information and Communication Technology Trends</i> , Vol. 1, 2014.

Conference Publications:

19	T. Aslam, Irfan Ahmed, S. Ali and M. I. Aslam, "TeraHertz Communication and Associated Challenges in 6G Cellular Networks," <i>2021 4th International Conference on Computing & Information Sciences (ICCIS)</i> , 2021, pp. 1-6, doi: 10.1109/ICCIS54243.2021.9676382.
18	A. Danish, S. Ali, M. I. Aslam and Irfan Ahmed, "Future prospects and challenges associated with intelligent reflecting surfaces enabled wireless communication," <i>2021 IEEE 18th International Conference on Smart Communities: Improving Quality of Life Using ICT, IoT and AI (HONET)</i> , 2021, pp. 121-125, doi: 10.1109/HONET53078.2021.9615389.
17	Sundus Ali, Muhammad Imran Aslam, Irfan Ahmed et al., "Performance Analysis of Single-Hop Device to Device Communication," <i>2021 International Bhurban Conference on Applied Sciences and Technologies (IBCAST)</i> , 2021, pp. 974-978, doi: 10.1109/IBCAST51254.2021.9393266.
16	T. Abbas, F. Qamar, M. N. Hindia, R. Hassan, Irfan Ahmed and M. I. Aslam, "Performance Analysis of Ad Hoc on-Demand Distance Vector Routing Protocol for MANET," <i>2020 IEEE Student Conference on Research and Development (SCoReD)</i> , Batu Pahat, Johor, Malaysia, 2020, pp. 194-199, doi: 10.1109/SCoReD50371.2020.9250989.
15	Hasan Rafae, Syed Waqar Jamil, Muhammad I. Aslam and Irfan Ahmed, "Internet of Nano Things: Next Step for Future of Nanotechnology," <i>Proceedings of the 4th International Electrical Engineering Conference, Karachi, 25-26 January, 2019.</i> ; Karachi; IEP
14	Hasan Rafae, Muhammad I. Aslam, Irfan Ahmed, Furqan Alam, Syed Waqar Jamil, "Awareness of Green Computing among Students of NED University of Engineering and Technology," <i>First International Conference on Carbon Neutral Built Environment (CNBT-I)</i> , Karachi, Pakistan, 20-21 December 2018.; Karachi; NED University
13	Hasan Rafae, Muhammad I. Aslam, Irfan Ahmed, "Green Computing: Techniques and Challenges," <i>First International Conference on Carbon Neutral Built Environment (CNBT-I)</i> , Karachi, Pakistan, 20-21 December 2018.
12	Tariq Mumtaz, Shahabuddin Muhammad, Nazeeruddin Mohammad, Muhammad Imran Aslam and Irfan Ahmed, "Modeling and Evaluation of Mobility Management in mmWave Cellular Networks", <i>21st IEEE International Multi Topic Conference, Karachi, Pakistan, 1-2 November 2018.</i> Karachi; Hamdard University.
11	Hira Mariam, Muhammad I. Aslam, Irfan Ahmed, " <i>Device-to-Device Communication in Cellular Networks: A Survey</i> ," <i>International Conference on Emerging Trends in Telecommunication and Electronic Engineering</i> , 27 - 28 February 2018, Karachi.
10	Talib Abbas, Faizan Qamar, Irfan Ahmed, Kaharudin Dimiyati, Mohammed B. Majed "Propagation Channel Characterization for 28 and 73GHz Millimeter-Wave 5G Frequency Band" <i>IEEE Scord Putrajaya, Malaysia December 2017</i>
9	Faizan Qamar, Talib Abbas, MHD Nour Hindia, Kaharudin Bin Dimiyati, Kamarul Ariffin Bin Noordin, Irfan Ahmed, "Characterization of MIMO Propagation Channel at 15 GHz for the 5G Spectrum," <i>2017 IEEE 13th Malaysia International Conference on Communications (MICC)</i> , 28-30 Nov. 2017, The Puteri Pacific, Johor Bahru, Malaysia.
8	Zaheer Abbas Balouch, Muhammad I. Aslam, Irfan Ahmed, "Energy Efficient Image Encryption Algorithm" <i>International conference on Innovations in Electrical Engineering and Computational Technologies</i> , Karachi, Pakistan, April 2017.
7	Sundus Ali, Muhammad I. Aslam, Irfan Ahmed, "MIMO channel modeling and capacity analysis using 3-D Spatial Statistical Channel Model for Millimeter Wave Outdoor Communication," <i>14th International Bhurban Conf. on Applied Sciences and Technology</i> , Islamabad, Pakistan, January 2017
6	Rana Khan, Tehzeb Jamal, Muhammad I. Aslam, Irfan Ahmed, "Comparative Analysis of Different Patch Antennas", <i>Proceedings of the 1st International Electrical Engineering Congress</i> , Karachi, 13-14 May, 2016.
5	Usama Fareed Ahmad, Muhammad ShahRukh Khan, Muneeb ur Rahman, S.M. Daniyal Hasan Shah, Irfan Ahmad, and Muhammad I. Aslam, "Wireless System Based Smart Wheelchair ", <i>Proceedings of the 1st International Electrical Engineering Congress</i> , Karachi, 13-14 May, 2016.
4	Sundus Ali, Muhammed I. Aslam, Irfan Ahmed, "Analysis of Proportional Fairness Utility Function and Interference Mitigation in Heterogeneous Cellular Networks", <i>31st IEEE Multi-topic International Symposium</i> , Karachi, 16th-17th March 2016.

3	Radha Mohanlal, Muhammad I. Aslam, Irfan Ahmed, "Radio resource allocation techniques for downlink transmission in LTE-Advanced", <i>4th International Conference on Electrical, Computer, Mechanical and Mechatronics Engineering (ICE2016)</i> , Dubai, Emirates, 4-5 February 2016,
2	Shafaq Mustafa, Muhammad I. Aslam, Irfan Ahmed, "Analysis of Electromagnetic Wave Propagation through Photonic Crystal Fibers," <i>International Conference on Advanced Materials and Process Engineering</i> , Karachi, 14-15 December, 2015.
1	Syed Asad Ali Shah, Muhammad I. Aslam, Irfan Ahmed, and Syed M. Usman Ali, "Near-Perfect Metamaterial Absorber for the Visible Spectrum," <i>International Conference on Advanced Materials and Process Engineering</i> , Karachi, 14-15 December, 2015.

Book Chapters:

1	Seema Ansari, Tahniyat Aslam, Adeel Ansari, Pablo Otero, Irfan Ahmed, and Fatima Maqbool, "Internet of Things: Technologies and Applications," in <i>Introduction to Internet of Things in Management Science and Operations Research: Implemented Studies</i> , A. Editor, Fausto Pedro García Márquez, Benjamin Lev. Springer Nature, 2021 pp. 1-30.
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