

## Program for IEEE ICTP 2019

### Day 1

<b>Inauguration and Registration</b> 09:00 AM– 12:30 PM, December 28, 2019, Saturday Venue: ECE 705 Virtual Classroom, ECE Building, BUET	
Time	Event
09:00 AM – 11:00 AM	Registration and Kit Collection
10:00 AM – 11:00 AM	Video Presentation
11:00 AM – 11:45 AM	Inauguration

<b>Tea Break, 11:45 AM – 12:30 PM, Day 1 (December 28, 2019, Saturday)</b> Venue: 6 <sup>th</sup> Floor, ECE Building
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<b>Session ID: KEYNOTE-1</b> 12:30 PM– 01:15 PM, Day 1 (December 28, 2019, Saturday) Venue: ECE 625, ECE Building, BUET Session Chair: B M A Rahman	
<b>Keynote Talk 1</b>	<b>Title:</b> Pattern Recognition via Optimal Filtering and Photorefractive Joint Transform Correlation <b>Speaker:</b> Mohammad S. Alam

<b>Lunch Break, 01:15 PM – 02:30 PM, Day 1 (December 28, 2019, Saturday)</b> Venue: 8 <sup>th</sup> Floor, ECE Building
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<b>Session ID: KEYNOTE-2</b> 02:30PM – 03:15 PM, Day 1 (December 28, 2019, Saturday) Venue: ECE 625, ECE Building, BUET Session Chair: Muhammad Anisuzzaman Talukder	
<b>Keynote Talk 2</b>	<b>Title:</b> Beyond LED Lighting: Laser based lighting and visible light communications <b>Speaker:</b> Boon S. Ooi

<b>Session ID: KEYNOTE-5</b> 03:15 PM – 04:00 PM, Day 1 (December 28, 2019, Saturday) Venue: ECE 625, ECE Building, BUET Session Chair: TBA	
<b>Keynote Talk 5</b>	<b>Title:</b> Future Power Grids with Power and Communication: Renewable Energy, Energy Storage, and Electric Vehicles <b>Speaker:</b> Kashem Muttaqi

**Tea Break, 04:00 PM – 04:15 PM, Day 1 (December 28, 2019, Saturday)**

**Venue: 6<sup>th</sup> Floor, ECE Building**

**Session ID: TECH-1A**

**04:15 PM – 05:15 PM, Day 1 (December 28, 2019, Saturday)**

**Venue: ECE 627**

**Session Title: Plasmonics**

**Session Chair: Mohammad Faisal**

<b>Paper ID</b>	<b>TITLE</b>	<b>AUTHORS</b>
19	Highly Sensitive Surface Plasmon Resonance Based Photonic Crystal Fiber Refractive Index Sensor	Md. Sadman Sakib, Md. Yousufali and Dilruba Bilkish.
58	Sensitivity Enhanced Surface Plasmon Resonance (SPR) Sensors with MoS <sub>2</sub> /Graphene Hybrid Overlayer	Tauhidul Haque and Hasan Khaled Rouf.
108	Highly Sensitive D-Shaped PCF Based Plasmonic Refractive Index Sensor	Emranul Haque, Abdullah Al Noman, Subaha Mahmuda, Md. Anwar Hossain, Nguyen Hoang Hai, Yoshinori Namihira and Feroz Ahmed.
117	Highly Sensitive Plasmonic Biosensor on Photonic Crystal Fiber	Iffat Mahmud, Abdul Khaleque, Alok Kumar Paul, Sunjidah Hossain and Mushfica Hossain.

**Session ID: TECH-1B**

**04:15 PM – 05:15 PM, Day 1 (December 28, 2019, Saturday)**

**Venue : ECE 632**

**Session Chair: A. K. M. Nazrul Islam**

<b>Tutorial</b>	<b>Title:</b> Optical Network Planning, Design and Operation <b>Presenters:</b> Akter Ul Alam, Abdullah Al Mamun, Habibul Azam of Fiber@Home Ltd.
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## Day 2

<b>Session ID: TECH-2A</b> <b>09:00 AM – 10:45 AM, Day 3 (December 29, 2019, Sunday)</b> <b>Venue: ECE 627</b> <b>Session Title: Photonic Crystal Devices</b> <b>Session Chair: Sharif Mohammad Mominuzzaman</b>		
<b>Paper ID</b>	<b>TITLE</b>	<b>AUTHORS</b>
59	Photonic Crystal Fiber based Terahertz Sensor for Alcohol Detection in Beverages: Design and Analysis	Md. Moshir Rahman, Farhana AkterMou, Abdullah Al Mahmud, Mohammed Imamul Hassan Bhuiyan and Mohammad Rakibul Islam.
75	Design and Characterization of a Low Loss Polarization Maintaining Photonic Crystal Fiber for THz Regime	Farhana Akter Mou, Md. Moshir Rahman, Md. Abdullah Al Mahmud, Mohammad Rakibul Islam and Mohammed Imamul Hassan Bhuiyan.
87	Analysis of a Multifunctional Dual-Core Photonic Crystal Fiber for Optical Communications	Zahidur Rahman, Md. Ashfaqur Rahman, Md. Asiful Islam and M. Shah Alam.
105	Design and Analysis of Supercontinuum Generating Hybrid Polymer Photonic Crystal Fiber for Medical Imaging	Shahba Tasmiya Mouna, A K M Ahsan Habib and Md. Shah Alam.
130	Zeonex Based Polarization Maintaining Low Loss Porous Core Fiber for Terahertz Regime	Md. Anwar Sadath, Mohammad Faisal and Mohammad Saiful Islam
132	Low Loss Topas Based Single Mode Photonic Crystal Fiber for THz Wave Propagation	Mohammad Saiful Islam, Md. Anwar Sadath and Mohammad Faisal.

<b>Session ID: TECH-2B</b> <b>09:00 AM – 10:45 AM, Day 2 (December 29, 2019, Sunday)</b> <b>Venue: ECE 632</b> <b>Session Title: Antenna Design and Applications</b> <b>Session Chair: Pran Kanai Saha</b>		
<b>Paper ID</b>	<b>TITLE</b>	<b>AUTHORS</b>

10	An Effective Pattern Reconfigurable C-shaped Slot Patch Antenna for Wi-Fi System	Atik Mahabub, Al-Zadid Sultan Bin Habib and Mahmuda Akter.
14	Design and Analysis of a Double Slotted With Multiple Strips Vivaldi Antenna For High Speed 5G Communications	Chinmoy Das, Zayed Mohammad and Nayan Sarker.
20	Optimization of Design parameters of microstrip patch antenna at 28 GHz and 38 GHz For 5G applications	Md Mohiuddin Soliman, Mohammad Lutful Hakim, Engr. Mohammed Jashim Uddin, Muhammad Mostafa Amir Faisal and Atikur Rahaman.
21	A Dual Band Shark Fin Integrated Vehicle Antenna For 5G and Wi-Max Applications	Sabah Mahjabeen Sarwar, Md Fahim F Chowdhury and Himadry Shekhar Das.
34	Wearable Finger Ring Antenna Array for 5G/mmWave Applications	Zhang Shuai and Dr. Md Hasanuzzaman Sagor.
42	Two Compact Multiband Millimetre Wave Antennas for Wireless Communication	Abdullah Khan Galib, Nayan Sarker and M. Rubaiyat Hossain Mondal.
84	A Low-Cost WLAN Band Notched Planar Patch Antenna for Ultra-Wideband Applications	Mahfujur Rahman, Foez Ahmed and Aurangzib Md. Abdur Rahman.

**Tea Break, 10:45 AM – 11:15 AM, Day 2 (December 29, 2019, Sunday)**  
**Venue: 6<sup>th</sup> Floor, ECE Building**

<b>Session ID: KEYNOTE-3</b> <b>11:15 AM –12:00 PM, Day 2 (December 29, 2019, Sunday)</b> <b>Venue: ECE 625</b> <b>Session Chair: Raqibul Mostafa</b>	
<b>Keynote Talk 3</b>	<b>Title:</b> Cross-domain Convergence in IoT: Opportunities and Research Challenges <b>Speaker:</b> Sudip Misra

**Session ID: KEYNOTE-4**  
**12:00 PM –12:45 PM, Day 2 (December 29, 2019, Sunday)**  
**Venue: ECE 625**  
**Session Chair: Boon S. Ooi**

<b>Keynote Talk 4</b>	<b>Title:</b> Design and Optimisation of Next generation Compact Photonic Sensors <b>Speaker:</b> B M A Rahman
<b>Lunch Break, 12:45 PM –02:30 PM, Day 2 (December 29, 2019, Sunday)</b> <b>Venue: 8<sup>th</sup> Floor, ECE Building</b>	

<b>Session ID: TECH-2C</b> <b>02:30 PM – 03:45 PM, Day 2 (December 29, 2019, Sunday)</b> <b>Venue: ECE 627</b> <b>Session Title: Optics and Photonic Devices</b> <b>Session Chair: Sulaiman Wadi Harun</b>		
<b>Paper ID</b>	<b>TITLE</b>	<b>AUTHORS</b>
33	Comparative Study on Perovskite Solar Cells Using Inorganic Transport Layers	Iqbal Kabir and Shaikh Asif Mahmood.
56	Mid-infrared wideband supercontinuum generation spanning up to 14 $\mu\text{m}$ using dispersion-engineered all-chalcogenide step-index fiber	Mohammad Karim and B. M. A. Rahman.
68	Backscattering Prohibited Transport of Photo Excited Electrons in 2D Hexagonal Lattice Topological Insulator	Beig Rajibul Hasan, Tanvir Ahmed Masum, Nishat Mahzabin Helaly, Anowarul Azim, Joy Sharma and Mahbub Alam.
95	Absorption Enhancement of GaAs Thin-Film with Geometrically Varying Periodic Array of SiO <sub>2</sub> Nanostructures	Mohammad Muntasir Hassan, Mehede Hassan Murad, Tama Fouzder, Sameia Zaman and Md Zunaid Baten.

<b>Session ID: TECH-2D</b> <b>02:30 PM – 03:45 PM, Day 2 (December 29, 2019, Sunday)</b> <b>Venue: ECE 632</b> <b>Session Title: Sensors</b> <b>Session Chair: Farseem Mannan Mohammedy</b>		
<b>Paper ID</b>	<b>TITLE</b>	<b>AUTHORS</b>
25	Hollow-core Photonic Crystal Fiber Sensor for Sorbitol Sensing	Shihab Ahmed, Jannatul Robaiat Mou, Md. Aslam Mollah and Niloy Debnath.
55	Modal analysis of capillary optical fibers and their possible applications in sensing	Mohammad Nayem Sarker, Md Rejvi Kaysir and Md Jahirul Islam

62	Design and Characterization of Multi-core Dual D-Shape PCF SPR Biosensor	Md. Nazmus Sakib and Md Shamim Anower.
88	Performance Analysis and Comparison of Silicon and Silica Nanowire Based Biochemical Sensors	Israt Rahman, Pragati Gupta, Zakia Tamanna Tisha, Shahba Tasmiya Mouna and Md. Shah Alam.
103	Plasmonic Photonic Crystal Fiber Refractive Index Sensor-Based on External Sensing	S. M. Abu Sufian Sunny, Tanvir Ahmed, Afra Anzum and Alok Kumar Paul.

**Tea Break, 3:45 PM –04:15 PM, Day 2 (December 29, 2019, Sunday)**  
**Location: 6<sup>th</sup> Floor, ECE Building**

<b>Session ID: INVITED-1</b> <b>04:15 PM – 05:15 PM, Day 2 (December 29, 2019, Sunday)</b> <b>Venue: ECE 627</b> <b>Session Chair: Farhad Hossain</b>		
<b>04:15PM – 04:45 PM</b>	<b>Invited Talk 1</b>	<b>Title:</b> A fiber Bragg Grating-based instrumented glove to measure finger flexure for use in post-stroke rehabilitation <b>Speaker:</b> Arup Lal Chakraborty
<b>04:45 PM – 05:15 PM</b>	<b>Invited Talk 2</b>	<b>Title:</b> Future Automotive Networks Architecture and Its Cyber Security Challenges <b>Speaker:</b> Rahamatullah Khondoker

**Conference Banquet, 07:00 PM, Day 2 (December 29, 2019, Sunday)**  
**Location: Spicy Ramna Restaurant, Dhanmondi, Dhaka**

### Day 3

<b>Session ID: TECH-3A</b> <b>09:00 AM – 10:45 AM, Day 3 (December 30, 2019, Monday)</b> <b>Venue: ECE 627</b> <b>Session Title: Signal Processing and Machine Learning</b> <b>Session Chair: Mohammad Ariful Haque</b>		
<b>Paper ID</b>	<b>TITLE</b>	<b>AUTHORS</b>
22	Sleep States Classification Based on Single Channel Electrooculogram Signal Using Variational Mode Decomposition	Tahia Tasnim, Arpita Das, Naqib Sad Pathan and Quazi Delwar Hossain.

36	Image Quality Enhancement with 2k-bit Correction in Pixel Repetition Embedding	Mohammad Ali Kawser and Hussain Nyeem.
41	Investigation of Side Channel Leakage of FeRAM Using Discrete Wavelet Transform	Abyad Enan and Mohammed Imamul Hassan Bhuiyan.
44	Relative Entropy Pre-Fitting Model for Noisy and Intensity Inhomogeneous Image Segmentation	Chowdhury Mohammad Abid Rahman and Hussain Nyeem.
79	An Approach Towards Intelligent Accident Detection, Location Tracking and Notification System	Supriya Sarker, Md Sajedur Rahman and Mohammad Nazmus Sakib.
94	Network Intrusion Detection System Using Voting Ensemble Machine Learning	Md. Raihan Al-Masud and Hossen Asiful Mustafa.
100	Fetal Arrhythmia Detection Using Fetal ECG Signal	Md. Saidur Rahman Pavel, Md. Rafi Islam and Asif Mohammed Siddique

<b>Session ID: TECH-3B</b> <b>09:00 AM – 10:45 AM, Day 3 (December 30, 2019, Monday)</b> <b>Venue: ECE 632</b> <b>Session Title: Wireless and Optical Communications</b> <b>Session Chair: Md. Saiful Islam</b>		
Paper ID	TITLE	AUTHORS
30	Performance Analysis of an OFDM Optical DQPSK FSO Link considering Strong Atmospheric Turbulence with Pointing Error	M Shariful Islam and S. P Majumder.
65	LDPC Coded OFDM OW Communication System with Coherent Optical Receiver and RF Synchronous Demodulation under Turbulent Condition	Bobby Barua and Satya Prasad Majumder.
74	BER Analysis of a Multi-Hop Decode and Forward PLC System Affected by Rayleigh Fading and Middleton Class A Channel Noise	Muhammad Jakaria Rahimi and Satya Prasad Majumder.
76	Information Theoretic Security over $\alpha$ - $\mu$ / $\alpha$ - $\mu$ Composite Multipath Fading Channel	Milton Kumar Kundu, Sarjana Shabab and A. S. M. Badrudduza.
96	Four-mode filter for mode division multiplexing	Md. Mahamudul Hasan Shuvo, Sazin Mohammad Aftab Ullah,

	optical communication systems	Mohammed Istiaque Reja and Kazi Tanvir Ahmmed.
97	Enhancement of Secrecy Multicast Capacity over $\kappa$ - $\mu$ Shadowed Fading Channel	A. S. M. Badrudduza, S.M. Saumi k Shahriyer, Milton Kumar Kundu and Sarjana Shabab.
124	Effect of Cross Phase Modulation in Wavelength Division Multiplexing Optical System with EDFA	Kazi Afsara Taher, Rafid Ur Rahman, Raina Iftekhar, Fardin Sabahat Khan and Kazi Abu Taher.

**Tea Break, 10:45 AM – 11:15 AM, Day 3 (December 30, 2019, Monday)**  
**Venue: 6<sup>th</sup> Floor, ECE Building**

<b>Session ID: INVITED-2</b>		
<b>11:15 AM –12:15 PM, Day 3 (December 30, 2019, Monday)</b>		
<b>Venue: ECE 625</b>		
<b>Session Chair: Md. Shafiqul Islam</b>		
<b>11:15AM –11:45 AM</b>	<b>Invited Talk 3</b>	<b>Title:</b> Exploiting Nanomaterials for Ultrafast Photonics <b>Speaker:</b> Sulaiman Wadi Harun
<b>11:45 AM –12:15 PM</b>	<b>Invited Talk 4</b>	<b>Title:</b> Recent developments in Specialty Optical Fiber for various applications <b>Speaker:</b> Hairul Azhar Abdul-Rashid

**Lunch Break, Monday, 12:15 PM – 02:00 PM, Day 3 (December 30, 2019, Monday)**  
**Location: 8<sup>th</sup> Floor, ECE Building**

**Session ID: Panel Discussion**  
**02:00 PM –03:00 PM, Day 3 (December 30, 2019, Monday)**  
**Venue: ECE 625**  
**Title:** Panel Discussion on Telecommunications in Bangladesh: Present Scenario and Future Prospects  
**Session Chair:** Satya Prasad Majumder

**Award Ceremony and Closing**  
**03:00 PM – 03:30 PM, Day 3 (December 30, 2019, Monday)**  
**Venue: ECE 625**



**Refreshment, 03:30 PM – 04:00 PM, Day 3 (December 30, 2019, Monday)**  
**Venue: 6<sup>th</sup> Floor, ECE Building**