Program

The 2017 34th National Radio Science Conference (NRSC)

Organized by

Academy of Scientific Research and Technology
The National Radio Science Committee (NRSC)

and

Arab Academy for Science, Technology and Maritime Transport (AASTMT)
Port Said Campus, Port Said, Arab Republic of Egypt

13-16 March 2017, Alexandria, Egypt
<table>
<thead>
<tr>
<th>Time</th>
<th>Session C-1</th>
<th>Session B-1</th>
<th>Session D-1</th>
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</thead>
<tbody>
<tr>
<td>15:30 – 17:00</td>
<td>Cognitive Radio &amp; Compressive Sensing</td>
<td>Dielectric and Nano Antennas</td>
<td>Optical Devices &amp; Networks</td>
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Room (A) | Room (B) | Room (C)
Tuesday, March 14th, 2017

<table>
<thead>
<tr>
<th>Time</th>
<th>Session C-2</th>
<th>Session B-2</th>
<th>Session K-1</th>
</tr>
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<tbody>
<tr>
<td>10:00 – 11:30</td>
<td>Secure Comms</td>
<td>Antenna Arr.</td>
<td>Medical Dev.</td>
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<td>Talk: C-INV1</td>
<td>Talk: B-INV1</td>
<td>Talk: D-INV1</td>
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<tr>
<td></td>
<td>Prof. El Sayed Saad</td>
<td>Prof. Ahmed Attiya</td>
<td>Prof. Abdelmonem Nasser</td>
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<td>12:00 – 12:30</td>
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<tbody>
<tr>
<td>12:30 – 14:00</td>
<td>Session C-3</td>
<td>Session B-3</td>
<td>Session D-2</td>
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<tr>
<td></td>
<td>4G Systems</td>
<td>UWB Antennas</td>
<td>MEMS &amp; Sensors</td>
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<td>Talk: C-INV2</td>
<td>Talk: H-INV1</td>
<td>Talk: D-INV2</td>
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<td></td>
<td>Prof. Rowayda Sadek</td>
<td>Prof. Imbaby I. Mahmoud</td>
<td>Prof. Diaa Khalil</td>
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<tr>
<td>14:30 – 16:00</td>
<td>Session C-4</td>
<td>Session H-1</td>
<td>Session C-5</td>
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<tr>
<td></td>
<td>Wireless Networks</td>
<td>Waves in Plasma &amp; Nodular Spectroscopy</td>
<td>Modulation &amp; Coding</td>
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<tr>
<td>16:00 – 17:00</td>
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Wednesday, March 15th, 2017

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<tbody>
<tr>
<td>10:00 – 11:30</td>
<td>Session C-6</td>
<td>Session B-4</td>
<td>Poster Session</td>
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<td>Advanced Signal processing for Communications</td>
<td>Antennas for Modern Communication Systems</td>
<td>Student Projects</td>
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<td>Hall (2)</td>
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<tr>
<td>11:30 – 13:00</td>
<td>ITU - Academia Activity Session</td>
<td>Poster Session - Student Projects</td>
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<tbody>
<tr>
<td>13:30 – 15:00</td>
<td>Best Paper and Student Awards</td>
<td>Closing Ceremony</td>
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Thursday, March 16th, 2017

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<tbody>
<tr>
<td>11:00 – 12:30</td>
<td>Field Trip 1</td>
<td>AASTMT Planetarium</td>
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<tr>
<td>12:30 – 14:00</td>
<td>Field Trip 2</td>
<td>AASTMT Simulators Complex</td>
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<td>14:00 – 15:00</td>
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<tr>
<td>15:00 – 17:00</td>
<td>Visit to The Library of Alexandria</td>
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</table>
**NRSC2016 Technical Program**

**INVITED KEYNOTE SPEAKERS SESSIONS**

**Monday, March 13rd, 2017**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Chair</th>
<th>Speaker</th>
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</thead>
<tbody>
<tr>
<td>11:30 – 12:15</td>
<td>Invited Talk I</td>
<td>Main Hall</td>
<td>Prof. Ismail Abdel-Ghafar</td>
<td>Gen. Kamel Al-Wazeer, Chief, Engineering Authority, Egyptian Armed Forces</td>
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<tr>
<td></td>
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<td>Inv.(1)</td>
<td>The Progress of the Developments in the Suez Canal Zone</td>
</tr>
<tr>
<td>13:00 – 13:45</td>
<td>Invited Talk II</td>
<td>Main Hall</td>
<td>Prof. Said E. El-Khamy</td>
<td>Prof. Yahia Antar, Royal Military College of Canada, Canada</td>
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<tr>
<td></td>
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<td>Inv.(2)</td>
<td>Overview of Some Future Trends in Antennas Research</td>
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<tr>
<td>13:45 – 14:30</td>
<td>Invited Talk III</td>
<td>Main Hall</td>
<td>Prof. El Sayed Mostafa</td>
<td>Prof. Dr. Said E. El-Khamy, Alexandria University, Egypt</td>
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<td>Inv.(3)</td>
<td>Recent Research Trends in Wireless Multimedia Communications</td>
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<tr>
<td>Session C-1</td>
<td>Room (A)</td>
<td>COGNITIVE RADIO &amp; COMPRESSIVE SENSING</td>
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<tr>
<td>Chair:</td>
<td>Prof. Onsy Abdel Alim</td>
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<td>Co-Chair:</td>
<td>Prof. El-Sayed Mostafa Saad</td>
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<tr>
<td><strong>C1</strong></td>
<td>Forward – Backward Hard Thresholding Algorithm for Compressed Sensing</td>
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<td></td>
<td>Wafaa A. Shalaby, Waleed Saad, Mona Shokair and Moawad I.</td>
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<tr>
<td><strong>C2</strong></td>
<td>Detection of Primary User Signal in Wideband Cognitive Radio Networks Exploiting DCT as Sensing Matrix</td>
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<tr>
<td></td>
<td>M. Abo-Zahhad, Sabah M. Ahmed, Mohammed Farrag, Khaled Ali</td>
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<td><strong>C3</strong></td>
<td>Performance Analysis of Different Opportunistic Spectrum Access Based on Secondary Users Priority Using licensed Channels in Cognitive Radio Networks</td>
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<td></td>
<td>Ahmed T. El-Toukhey, Abdelhady A. Ammar, Mohsen M. Tantawy, Ibrahim F. Tarrad</td>
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<td><strong>C4</strong></td>
<td>Impact of Harvesting and Scanning Powers on Secondary User Utility in Spectrum Leasing Cognitive Radio Networks</td>
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<td>Heba A. Tag El-Dien, Rokaia M. Zaki</td>
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<td><strong>C5</strong></td>
<td>Automated Testbed for Spectrum Allocation in Hostile Environment Based on USRP Cognitive Radio System</td>
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<td>Asmaa M. Saafan, Hesham M. El-Badawy</td>
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<tr>
<th>Session B-1</th>
<th>Room (B)</th>
<th>DIELECTRIC AND NANO ANTENNAS</th>
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<tr>
<td>Chair:</td>
<td>Prof. Hadia El-Hennawy</td>
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<td>Co-Chair:</td>
<td>Prof. Ahmed Attia</td>
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<tr>
<td><strong>B1</strong></td>
<td>A Rhombic Nano-antenna for Infrared Detection Applications</td>
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<td>N. A. Eltresy, H. A. Malhat, and S. H. Zainud-Deen</td>
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<td><strong>B2</strong></td>
<td>Performance of Nanoantenna-Coupled Geometric Diode with Infrared Radiation</td>
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<td><strong>B3</strong></td>
<td>Comparative Study on the Transmission Gain between On-Chip Cylindrical Dielectric Resonators Antenna and On-Chip Circular Microstrip Patch Antenna for 60-GHz Communications</td>
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<td>S. Abdelhamied, S. H. Zainud-Deen, and H. A. Malhat</td>
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<td><strong>B4</strong></td>
<td>Low Profile Perforated Folded Transmit array for Polarization Diversity</td>
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<td>W. M. Hassan, H.A. Malhat, S.H. Zainud-Deen, and A.M. Attiya</td>
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<td><strong>B5</strong></td>
<td>Circularly Polarized Chamfer-shaped DRA Array</td>
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<td>Abdelhady M.A., Noha Al-Shalaby, S. Gaber.</td>
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<td>15:30-17:00</td>
<td>Session D-1</td>
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<tr>
<td><strong>Room (C)</strong></td>
<td><strong>OPTICAL DEVICES &amp; NETWORKS</strong></td>
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<td><strong>Chair:</strong></td>
<td>Prof. Diaa Khalil</td>
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<td><strong>Co-Chair:</strong></td>
<td>Prof. Abdel Moneim Abdel Bary</td>
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</table>
| **D1**              | Digital N x N Multimode Interference Couplers  
Tarek A. Ramadan |
| **D2**              | Simulation of FDM-Based Next Generation Passive Optical Networks  
Rodaina G. A. Gallo, Ziad A. El-Sahn, Masoud B. Alghoniemy, and |
| **D3**              | Silicon Photonic Mid-infrared Grating Coupler Based on Silicon-on–insulator Technology  
Michael Gad, Aya Zaki and Yasser M. Sabry |
| **D4**              | Theoretical and Experimental Analysis of the Fabrication Tolerance on Deeply Etched Silicon/Air Bragg Micromirrors  
Mohamed N. Ali, Yasser M. Sabry, Frédéric Marty, Tarek Bourouina, Diaa Khalil, Khaled A. Kirah |

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**Tuesday. March 14th, 2017**

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<tr>
<th>10:00-11:30</th>
<th>Session C-2</th>
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<tbody>
<tr>
<td><strong>Room (A)</strong></td>
<td><strong>SECURE COMMUNICATIONS</strong></td>
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<tr>
<td><strong>Chair:</strong></td>
<td>Prof. Magdy El-Soudani</td>
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<td><strong>Co-Chair:</strong></td>
<td>Prof. Rowayda Sadek</td>
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| **C6**              | On Signal Reconstruction Algorithms and Speedup Opportunities  
Manal E. Helal, Hussein Hamed Ghouz |
| **C7**              | Design of Image Encryption Algorithm Based on Different Chaotic Mapping  
Mohamed A. Mokhtar, Nayra M. Sadek, Amira G. Mohamed |
| **C8**              | Robust Image Hiding in Audio Based on Integer Wavelet Transform and Chaotic Maps Hopping  
| **C9**              | Performance Evaluation of SAR in Presence of Multiplicative Noise Jamming  
Mohamed A. Ammar, Hossameldin A. Hassan, Mohamed S. Abdel-Latif, and Sherif A. Elgamel |
| **C10**             | Statistical Representation for Iris Anti-Spoofing Using Wavelet-Based Feature Extraction and Selection Algorithms  
## Session B-2

### Room (B)  
**ANTENNA ARRAY DESIGN**

**Chair:** Prof. Mohamed Aboul Dahab  
**Co-Chair:** Prof. Essmat Abd Elfatah

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<tr>
<td>B6</td>
<td>Multilayer Graphene-Only Transmit Array Antenna (MGOT) For Terahertz Applications</td>
<td>W. M. Hassan</td>
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<tr>
<td>B7</td>
<td>Sidelobe Reduction and Resolution Enhancement by Random Perturbations in Periodic Antenna Arrays</td>
<td>Tarek Sallam, Ahmed Atiya</td>
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<td>B8</td>
<td>Super Thinned Concentric Ring Arrays Using Iterative L1 Optimization</td>
<td>Said E. El-Khamy, and Magdy A. Abdelhay</td>
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<tr>
<td>B9</td>
<td>Compact Cascaded Branch Line Coupler Using T-Sections</td>
<td>Hesham. A. Mohamed, and Ashraf S. Mohra</td>
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<tr>
<td>B10</td>
<td>Generator Optimization for Thinned Fractal Hexagonal and Pentagonal Antenna Arrays Using Ant Colony Algorithm</td>
<td>Said E. El-Khamy, Ahmed S. Eltrass, Huda Fawzy EL-Sayed</td>
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## Session K-1

### Room (C)  
**MEDICAL DEVICES & IMAGING**

**Chair:** Prof. Hamdy El-Mikati  
**Co-Chair:** Prof. Khaled Shehata

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<th>No.</th>
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<tbody>
<tr>
<td>K1</td>
<td>An Improved Planar Electrode for Dielectric Parameters Extraction</td>
<td>Sameh Sherif, Yehya H. Ghallab, Hamdy Abdelhamid, Ahmed Seddik</td>
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<tr>
<td>K2</td>
<td>Medical Image Fusion Techniques Based on Combined Discrete Transform Domains</td>
<td>Heba M. El-Hoseny, El-Sayed M. El.Rabaie, Wael Abd Elrahman, and Fathi E Abd El-Samie</td>
</tr>
<tr>
<td>K3</td>
<td>Compressive Sensing MRI Using Dual Tree Complex Wavelet Transform with Wavelet Tree Sparsity</td>
<td>Mohamed Ragab, Osama A. Omer, Hany S. Hussien</td>
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</tbody>
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11:30 – 12:00
INVITED TALK BY NRSC MEMBERS (1)

Room (A)
Chair: Prof. Magdy El-Soudani
C-INV1 Optimization Algorithms: A Survey
Prof. El Sayed M. Saad and Shahira M. Habashy
Helwan University, Egypt

Room (B)
Chair: Prof. Saber H. Zainud-Deen
B-INV Asymmetric Double-Grating-Gated Plasmonic for Terahertz
Prof. Ahmed M. Attiya
Electronics Research Institute, Egypt

Room (C)
Chair: Prof. Diaa Khalil
D-INV1 Fabrication and Characterization of Nano-Sensors
Prof. Abdelmoneim A. Nasser, I.G. Mors, A.M. ElShaer, H. Abukil , and
AASTMT, Egypt

12:30-14:00
Session C-3
Room (A) 4G SYSTEMS
Chair: Prof. Hesham El-Badawy
Co-Chair: Dr. Ziad A.El-Sahn

C11 An Enhanced Fuzzy Logic Optimization Technique Based on User Mobility for LTE Handover
Mohamed Saeed, Mona El-Ghoneimy, Hanan Kamal

C12 PAPR Reduction for Downlink LTE System Based on DCT and Hyperbolic Tangent Companding Noise Cancellation
Mohamed A. Aboul-Dahab, Esam A. A. A. Hagras, and Ehab EL-Henawy

C13 Performance Enhancement Based Resource Allocation Scheme Using Soft Frequency Reuse for LTE Femtocell Networks
Eman S. Attia, Sami A. El-Dolil and Mohammed Abd-Elnaby

C14 Performance of a LTE System Employing Practical Cognitive Femtocells
Walid R. Ghanem , Mohamed Shalaby, Mona Shokair, and Nagy W.

C15 Hybrid Precoding Performance in Downlink Mm-Wave Massive MU-MIMO Systems
George A. Georgui, Yasmine A. Fahmy
### 12:30-14:00

#### Session B-3

**Room (B) UWB ANTENNAS**

**Chair:** Prof. Hamdy El-Mikati  
**Co-Chair:** Prof. Saber H. Zainud-Deen

<table>
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<th>Session</th>
<th>Title</th>
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<tbody>
<tr>
<td>B11</td>
<td>Realization OF Multi-band Antenna for WiMAX and RFID by Etching Two Interlaced Triangles from Delta Resonator</td>
<td>Mahmoud M. A. El-Negm Yousef and Adel B. Abdel-Rahman</td>
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<tr>
<td>B12</td>
<td>Compact, Quasi Self-Complementary (QSC) Ultra-Wide Band (UWB) Antenna Integrated with Bluetooth</td>
<td>Ahmed Shaker</td>
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<tr>
<td>B13</td>
<td>Controllable WLAN Band Rejection of Ultra Wideband Monopole Antenna Using PIN Diodes and Two C-Shaped Conductor</td>
<td>Mohamed I. Ahmed, Ashraf S. Mohra</td>
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#### Session D-2

**Room (C) MEMES AND SENSORS**

**Chair:** Prof. Mohamed El-Said Nasr  
**Co-Chair:** Prof. Amr Bioumy

<table>
<thead>
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<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>D6</td>
<td>Multimode Spot-Size Converter for Optical MEMS Applications</td>
<td>Abdelrahman A. Maher, Mazen Erfan, Yasser M. Sabry, and Diaa Khalil</td>
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<tr>
<td>D7</td>
<td>Distortion of Gaussian Beams Reflected Off-axis on Curved Mirrors in the MEMS Scale</td>
<td>Yasser M. Sabry, Diaa Khalil, and Tarik Bourouina</td>
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<tr>
<td>D8</td>
<td>Organic Field Effect Transistor Based on Polyaniline – Dodecyl-benzene Sulphonic Acid for Humidity Sensor</td>
<td>Karim Amer, Shaker Ebrahim, Mohamed Feteha, Moataz Soliman, Ahmed El-Shaer</td>
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viii
14:00 – 14:30
INVITED TALK BY NRSC MEMBERS (2)

Room (A)
Chair: Prof. Magdy El-Soudani
C-INV2 Internet of Things Technologies: A Survey
Prof. Rowayda Sadek
Helwan University, Egypt

Room (B)
Chair: Prof. Kamal Awadalla
H-INV WSNs for Nuclear Material Detection and Localization
Prof. Imbaby I. Mahmoud and Asmaa A. Abd El Hamid
Egyptian Atomic Energy Authority, Egypt

Room (C)
Chair: Prof. Ahmed Attia
D-INV2 MEMS Based Swept Laser Source for IR Imaging
Prof. Diaa Khalil
Ain Shams Univ. and Si-War Systems, Egypt

14:30-16:00
Session C-4
Room (A) WIRELESS NETWORKS
Chair: Prof. Hesham El-Badawy
Co-Chair: Prof. Rowayda Sadek

<table>
<thead>
<tr>
<th>C16</th>
<th>Proposed Intermittent Cluster Head Selection Scheme for Efficient Energy Consumption in WSNs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Abd Elwahab Fawzy, Asmaa Amer, Mona Shokair, and Waleed Saad</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C17</th>
<th>Distributed Resource Allocation for D2D Communication Networks Using Auction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F. W. Zaki, S. Kishk, and N. H. Almofari</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C18</th>
<th>Game Theoretic Utility Optimization Based Power Control on Cognitive Sensor Network</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A. Abdelaziz. Salem and Mona Shokair</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C19</th>
<th>A New Visualization Technique to Design a Wideband LNA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A.A.A. Nasser, M. R. M. Rizk, Ehab Abou-Bakr, El-Sayed A. ElBadawy, and Amr M. Mahros</td>
</tr>
</tbody>
</table>
### Session H-1

**Room (B)**
- **Chair**: Prof. Imbaby Mahmoud
- **Co-Chair**: Dr. Hanaa Shaker

**NUCLEAR SPECTROSCOPY**

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Development of Pileup Recovery Algorithms by Peak Detection Method of Digital Gamma Ray Spectroscopy</td>
<td>Manar M. Ouda, Mohamed S. El-Tokhy, Mohamed Amal-Eldin, Sherief Hashima, Nesreen Ziedan, and Imbaby I. Mahmoud</td>
</tr>
</tbody>
</table>

### Session C-5

**Room (C)**
- **Chair**: Prof. Magdy El-Soudani
- **Co-Chair**: Prof. Ihab Badran

**MODULATION & CODING**

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>C20</td>
<td>Damping Shift Keying (DSK): A New Modulation Space for Single Carrier Communications</td>
<td>Mostafa Salah, Osama A. Omer, and Usama Sayed Mohammed</td>
</tr>
<tr>
<td>C21</td>
<td>Dithered Largest Spread Cubic Permutation Polynomial Interleavers for Turbo Codes</td>
<td>Mohamed S. Omeira, Ashraf D. Elbayoumy, Gamal M. Abdel-Hamid</td>
</tr>
<tr>
<td>C22</td>
<td>New Code Assignment Strategy for Optical Communication Link Using Multi-Rate MC-DS-CDMA in Time-Frequency-wavelength (TFW) Domain Spreading</td>
<td>Tamer A. Moniem</td>
</tr>
<tr>
<td>C23</td>
<td>Low Complexity MIMO Detection Technique For 1-bit ADC MIMO-CEM using Adaptive Sphere Decoding</td>
<td>Doaa Abdelhameed, Hany S. Hussien, Ehab Mahmoud Mohamed</td>
</tr>
</tbody>
</table>
### Wednesday, March 15th, 2017

<table>
<thead>
<tr>
<th>10:00-11:30</th>
<th>Session C-6</th>
<th>Room (A)</th>
<th>ADVANCED SIGNAL PROCESSING FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chair:</strong></td>
<td><em>El-Sayed Mostafa</em></td>
<td><strong>Co-Chair:</strong></td>
<td><em>Prof. Maha Sharkas</em></td>
</tr>
<tr>
<td><strong>C24</strong></td>
<td><em>Transfer Learning with Long Term Artificial Neural Network Memory (LTANN-MEM) and Neural Symbolization Algorithm (NSA) for Solving High Dimensional Multi-Objective Symbolic Regression Problems</em></td>
<td>Amr K. Deklel, Mohamed A. Saleh, Alaa M. Hamdy, Elsayed M. Saad</td>
<td></td>
</tr>
<tr>
<td><strong>C26</strong></td>
<td><em>Performance Evaluation of EVS Coder Against the Change in the Spoken Language</em></td>
<td>Christina Gamal, Michael N. Mikhael, Hala A. Mansour</td>
<td></td>
</tr>
<tr>
<td><strong>C27</strong></td>
<td><em>Complexity Reduction for GPS Acquisition Algorithms Using Sparse Fourier Transform</em></td>
<td>Samar Soliman, Fatma Newagy, Ismail Hafez</td>
<td></td>
</tr>
<tr>
<td><strong>C28</strong></td>
<td><em>A New Approach for Designing a Smart Glove for Arabic Sign Language Recognition System Based on the Statistical Analysis of the Sign Language</em></td>
<td>Mina I. Sadek, Michael N. Mikhael, Hala A. Mansour</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10:00-11:30</th>
<th>Session B-4</th>
<th>Room (B)</th>
<th>ANTENNAS FOR MODERN COMMUNICATION SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chair:</strong></td>
<td><em>Prof. Mohamed Aboul Dahab</em></td>
<td><strong>Co-Chair:</strong></td>
<td><em>Prof. Ahmed Attia</em></td>
</tr>
<tr>
<td><strong>B15</strong></td>
<td><em>Novel On-Board Triplexer Antenna for Satellite Applications</em></td>
<td>Mohamed A. H. Oweis, W. Swelam, Mohamed H. Abd El Azeem</td>
<td></td>
</tr>
<tr>
<td><strong>B16</strong></td>
<td><em>RFID Tag for Railway Applications Based on Narrow-Band</em></td>
<td>Ė. I. Abd El-Rahman, A.M. Atiya, W. M. Hassan, H. Mahmoud, and H. M. Abd-El Kadeer</td>
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<tr>
<td><strong>B17</strong></td>
<td><em>Quad-Band Perforated Rectangular Dielectric Resonator Antenna for Wireless Communications</em></td>
<td>Hend A. Malhat, and Saber H. Zainud-Deen</td>
<td></td>
</tr>
<tr>
<td><strong>B18</strong></td>
<td><em>Electromagnetic Simulation for Land Imaging Using Fully Polarimetric SAR System</em></td>
<td>Eman M. El-Desouki, Khalid F.A. Hussien, Hadia M. El-Hennawy</td>
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<tr>
<td>Time</td>
<td>Activity</td>
<td>Venue</td>
<td>Chair</td>
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<tr>
<td>10:00 – 13:00</td>
<td><strong>POSTER SESSION - STUDENT PROJECTS</strong></td>
<td>Hall (2)</td>
<td>Prof. Rowayda Sadek</td>
</tr>
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<td></td>
<td><strong>Poster Session</strong></td>
<td></td>
<td><strong>Poster Session – Student Projects</strong></td>
</tr>
<tr>
<td>11:30 – 13:00</td>
<td><strong>ITU -ACADEMIA ACTIVITY SESSION</strong></td>
<td>Hall (2)</td>
<td>Prof. Hadia El-Hennawy</td>
</tr>
<tr>
<td></td>
<td><strong>International Telecommunication Union (ITU) Perspectives for Academia</strong></td>
<td></td>
<td>Prof. Sherif Geninah</td>
</tr>
<tr>
<td>13:30 – 15:00</td>
<td><strong>CLOSING CEREMONY</strong></td>
<td>Main Hall</td>
<td>Prof. Said El-Khamy</td>
</tr>
<tr>
<td></td>
<td><strong>Best Paper and Student Awards &amp; Closing Ceremony</strong></td>
<td></td>
<td>Prof. Hesham El-Badawy</td>
</tr>
</tbody>
</table>