

GlobalEM 2022

Global Electromagnetics Conference
The St Regis Abu Dhabi
13th - 17th November 2022

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Welcome from Conference General Chair

Dear Guests,

On behalf of my team at the Directed Energy Research Center (DERC), part of the Technology Innovation Institute, a leading global scientific research entity working at the intersection of discovery science and your hosts this year, welcome to a very special edition of the Global Electromagnetics Conference (GlobalEM) 2022. This is the first time we are holding the landmark conference in the United Arab Emirates (UAE) and in the Middle East region as well.

Abu Dhabi, our beautiful host city, and the capital of the UAE is its largest city (with 80% of its landmass); its name translates into “Father of the Gazelle” in Arabic. Home to some of the most stunning cultural monuments and breathtaking natural landscapes such as the Sheikh Zayed Grand Mosque, the Louvre Abu Dhabi, Ferrari World, Jubail Mangrove Park, and Al Wathba Wetland Reserve, the emirate of Abu Dhabi also has a plethora of rich wildlife and natural resources. We hope you take the time to explore some of these myriad attractions.

GlobalEM 2022 is to run at the St. Regis Abu Dhabi, part of the iconic Nation Towers, situated in the heart of the city on the spectacular Corniche. The St. Regis is only minutes away from the Marina Mall and many of the embassies, oil and gas companies, and business institutions in Abu Dhabi. The destination blends authentic Arabic hospitality with over a century of remarkable St. Regis tradition and is today a preferred business and social hub for Arab royalty, corporate executives, and leisure travelers from all over the world.

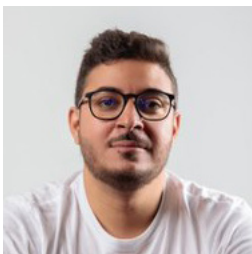
I would like to take this opportunity to thank our impeccable, technical program committee, the international scientific committee, the conference planning organizers as well as our volunteers and their universities.

The GlobalEM meetings have a rich history and were held for the first time in 1978 as the Nuclear Electromagnetic Pulse Meeting (NEM) in Albuquerque, New Mexico, with the support of eminent scientist in the electromagnetic field, Dr. Carl Baum and the Summa Foundation that he established. At some point the NEM was renamed as the High-Power Electromagnetics Meeting or HPEM. When this meeting moved in 1994 to Bordeaux, France, it was renamed EUROEM and subsequently, the meetings in North America have been called AMEREM. These meetings have been held every even year since 1978.

As we know, in 2015 and 2017 ASIAEM conferences were initiated in Jeju Island, Republic of Korea and Bengaluru, India respectively due to the increased number of papers from Asia. This year, the meeting moved to Abu Dhabi and has been renamed for the umpteenth time! It will hereafter be called GlobalEM, regardless of the conference location.

GlobalEM promises to be a game changer for the region and the world at large. Electromagnetics has already found application in multiple industries and sectors – from your everyday devices such as mobile phones to maglev trains, and astronomy to health care and everything in between!

We hope you enjoy the deliberations at the sessions and opportunities to network with peers and industry experts. Thank you for joining us at GlobalEM 2022.



Dr. Chaouki Kasmi
Chief Researcher,
Directed Energy Research Center,
GlobalEM Chair

Welcome by the Technical Program Committee (TPC)

Dear Members of the HPEM Community,

On behalf of the Technical Program Committee (TPC), it is a pleasure to welcome you to GlobalEM 2022 in Abu Dhabi, United Arab Emirates. The conference is technically sponsored by SUMMA Foundation and is organized by the Technology Innovation Institute (TII) and the Directed Energy Research Center (DERC) in Abu Dhabi. Dr. Chaouki Kasmi from DERC/TII is the General Conference Chairman. We have chosen a new name for our conference, saying goodbye to our old friends: AMEREM, EUROEM and ASIAEM. Hopefully the new name will remove any confusion about the constant changing of our conference name each year in the future.

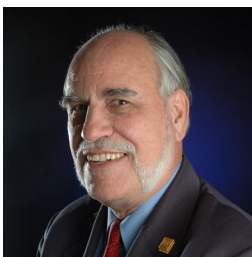
We have planned an exciting technical program. In addition, we have several exhibitors presenting their products and services. HPEM (High-Power Electromagnetics) is an all-encompassing term consisting of lightning, HEMP, IEMI, and electromagnetic testing systems producing high-power EM fields in narrowband, mesoband, and hyperband conditions. This year we solicited papers in 19 topical areas, covering HPEM aspects of interest to researchers throughout the world. Each of the TCs has a Chair and a Vice-Chair to solicit submissions and to review the papers and organize the sessions. Without the TCs help, it would be difficult to organize this conference.

We received 91 papers this year, which was lower than usual due to continuing problems with worldwide COVID travel regulations throughout the world. Of the submitted papers, the UAE submitted 35, the US-16, France-16, Germany-6 and Switzerland-5.

As for the technical committee support, the OPENCONF paper review system worked well (operated by the TPC Vice Chair, Dr. Nicolas Mora), and the TC Chairs and Vice-Chairs worked with the Chair and Vice-Chair of the TPC to complete the review process and to organize the sessions, including session chairs. We are presenting a Best Student Paper Award, an Outstanding Young Scientist Award, new HPEM Fellow awards and new members selected to receive the Carl E. Baum Memorial Medal. These awards will be presented on Wednesday evening during the awards dinner.

We hope you will find this to be a rewarding and interesting program. Please do take time to see the sights of Abu Dhabi and the United Arab Emirates during your visit.

We expect to meet you all in 2024 at a location to be announced soon.



Dr. William Radasky
Chair, TPC



Dr. Nicolas Mora
Vice-Chair, TPC

Platinum Sponsor

The logo for SIGN4L, featuring the word "SIGN4L" in a bold, sans-serif font. The "4" is stylized with a red horizontal bar above it.The logo for ETS-LINDGREN, featuring the company name in a bold, sans-serif font. To the left of the text is a red graphic consisting of several curved lines. Below the company name, it says "An ESCO Technologies Company" in a smaller font.

Gold Sponsor

The logo for Rohde & Schwarz, featuring the company name in a bold, sans-serif font. Below the name is the tagline "Make ideas real" in a smaller font.

montena

The logo for ITHPP ALCEN, featuring the text "ITHPP" in a bold, sans-serif font. Below it, "ALCEN" is written in a smaller, orange font. The entire logo is flanked by horizontal lines.The logo for Dassault Systèmes, featuring a stylized "3S" in blue. To the right of the "3S" is the text "DASSAULT SYSTEMES" in a blue, sans-serif font.

Silver Sponsor

The logo for kaptics, featuring the word "kaptics" in a blue, sans-serif font. The "k" is lowercase, and the "a" is lowercase. The "p" is lowercase, and the "t" is lowercase. The "i" is lowercase, and the "c" is lowercase. The "s" is lowercase. The logo is flanked by a blue arc.The logo for FLUID CODES, featuring the text "FLUID" in a bold, sans-serif font. Below it, "CODES" is written in a smaller, sans-serif font. To the right of the text is a red graphic consisting of several curved lines.The logo for Ansys, featuring the word "Ansys" in a bold, sans-serif font. To the right of the word is a yellow graphic consisting of several curved lines.

Technical committee

Name	TC	Short Title	Organization	Country
Dave Giri	1	Sources, Antennas and Facilities	ProTech	USA
Bill Prather	1	Sources, Antennas and Facilities	Air Force Research Laboratory	USA
Jean-Philippe Parmantier	2	Coupling/Structures/Cables	ONERA	France
Jun Guo	2	Coupling/Structures/Cables	Xi'an Jiaotong University	China
Anthony Wraight	3	Measurement Techniques	Ministry of Defence	UK
Lihua Shi	3	Measurement Techniques	E3OE Laboratory	China
Bill Radasky	4	IEMI Threats/Effects/Protection	Metatech Corp.	USA
Richard Hoad	4	IEMI Threats/Effects/Protection	QinetiQ	UK
Armin Kaelin	5	System Level Protection and Testing	EMProtec	Switzerland
Yanzhao Xie	5	System Level Protection and Testing	Xi'an Jiaotong University	China
Farhad Rachidi	6	Lightning EM Effects/Measurement	Swiss Federal Institute of Technology-EPFL	Switzerland
Marcos Rubinstein	6	Lightning EM Effects/Measurement	University of Applied Sciences Western Switzerland	Switzerland
Sergey Tkachenko	7	Analytic and Numerical Modeling	University of Magdeburg	Germany
Shengquan Zheng	7	Analytic and Numerical Modeling	Science and Technology on EMC Laboratory	China
Lars-Ole Fichte	8	Bioeffects/Medical Applications of EM	Helmut Schmidt University	Germany
Dave Giri	8	Bioeffects/Medical Applications of EM	ProTech	USA
Dave Giri	9	Antenna Design/Radiation	ProTech	USA

Technical committee

Name	TC	Short Title	Organization	Country
Everett Farr	9	Antenna Design/Radiation	Farr Research	USA
Chaouki Kasmi	10	Statistical Methods in HPEM	Technology Innovation Institute	UAE
Lars-Ole Fichte	10	Statistical Methods in HPEM	Helmut Schmidt University	Germany
Felix Vega	12	Explosive Devices - Effects and Protection	Technology Innovation Institute	UAE
Xiong Wu	13	EM Transients in UHV/EHV Trans Lines and Substations	State Grid	China
Bill Radasky	13	EM Transients in UHV/EHV Trans Lines and Substations	Metatech Corp.	USA
Edward Savage	14	Influence of Geomagnetic Disturbances on Infrastructures	Metatech Corp.	USA
Edl Schamiloglu	15	Meta Materials for High-Power Applications	University of New Mexico	USA
Zhuoyan Duan	15	Meta Materials for High-Power Applications	University of Electronic Science and Technology of China	China
Jie Guo	16	Design of Protective Devices and Test Methods	Xi'an Jiaotong University	China
Bill Radasky	17	Evaluation of HEMP/IEMI Impacts on Critical Infrastructures	Metatech Corp.	USA
Yanzhao Xie	17	Evaluation of HEMP/IEMI Impacts on Critical Infrastructures	Xi'an Jiaotong University	China
Richard Hoad	18	Standards for HPEM Protection	QinetiQ	UK
Tae-heon Jang	18	Standards for HPEM Protection	Hanyang University	South Korea
Milosch Meriac	SS-01	High Power Acoustics and Effects on Systems	Technology Innovation Institute	UAE
Guillaume Matras	SS-02	High Energy Lasers and Effects on Materials	Technology Innovation Institute	UAE
Steevy Cordette	SS-02	High Energy Lasers and Effects on Materials	Technology Innovation Institute	UAE
Carlos Romero	SS-3	Dave Giri: Career and Times	Armasuisse Science and Technology	Switzerland

Venues for conference events

Sunday 13 November 2022

Welcome reception

Location: Cabana Beach Bar n Grill

Time: 6:00 pm – 9:00 pm

Dress code: Casual attire

Monday 14 November 2022

Welcome and Technical Sessions

Location: AlMudhaif 2 / Al Khaznah 1/ Al Khaznah 2

Time: 9:00am-5:00pm

Tuesday 15 November 2022

Plenary and Technical Sessions

Location: AlMudhaif 2 / Al Khaznah 1/ Al Khaznah 2

Time: 9:00am-5:00pm

Dinner in the desert

Pick up location: St Regis Abu Dhabi Lobby

Time: 5:30 pm – 10:00 pm

Dress code: Casual attire

Registration: Attendance confirmation is required at the registration desk

Wednesday 16 November 2022

Plenary and Technical Sessions

Location: AlMudhaif 2 / Al Khaznah 1 / Al Khaznah 2

Time: 9:00am-5:00pm

Awards dinner

Location: St Regis Abu Dhabi Hotel – Al Mudhaif 2 Ballroom

Time: 7:00 pm – 10:00 pm

Dress code: Business casual attire

Thursday 17 November 2022

Technical Sessions

Location: AlMudhaif 2 / Al Khaznah 1/ Al Khaznah 2

Time: 9:00am-5:00pm

Time	AI Mudhaif 2		AI Khaznah 1		AI Khaznah 2	
9:00-10:30	Plenary Welcome Session in AIMudhaif 2					
9:00-9:20	Dr. Chaouki Kasmi - Technology Innovation Institute - DERC Welcome Speech from the GlobalEM 2022 Conference Chair					
9:20-9:40	Prof. Edl Schamiloglu - Summa Foundation Welcome Speech from Summa					
9:40-10:00	Dr. William Radasky - TPC Chair Introduction to the Technical Program					
10:00-10:20	Dr. Nicolas Mora - Technology Innovation Institute - DERC Logistics and social program explanations					
10:30-11:00	Coffee Break Morning					
11:00-13:00	TC09 ID	Antenna Design/Radiation Felix Vega, Fernando Albarracin	TC06 ID	Lightning EM Effects/ Measurement Farhad Rachidi, Marcos Rubinstein	TC07 ID	Analytic and Numerical Modeling, Sergey Tkachenko
11:00-11:20	96	Performance Evaluation of Ultra-Wideband Vivaldi Antennas for GPR Systems Alejandro Rangel - Universidad Nacional de Colombia	10	Analysis of Lightning Electromagnetic Field Propagation Over Mountainous Terrain using Simultaneous Records of Current and its Electric Field at 380-km Distance Marcos Rubinstein - University of Applied Sciences of Western Switzerland	74	Semi-analytical gray-box modeling of an impulse radiating antenna Elias Le Boudec - Swiss Federal Institute of Technology-EPFL
11:20-11:40	51	3D Printed Absorbing Frequency Selective Surface in the S-Band Fernando Albarracin - Technology Innovation Institute - DERC	8	FDTD Simulation of Voltages Induced on Secondary Circuits in a Substation with a Grounding Grid Akiyoshi Tatematsu - Central Research Institute of Electric Power Industry	80	Method of Modal Parameters for the Wire Segments with Symmetrical Geometry and the Regge Method Sergey Tkachenko - Otto-von-Guericke University Magdeburg
11:40-12:00	73	Effect of the Electrode Geometry on the Radiation Performance of a High-Power Dipole Antenna Ahmed Alebri - Technology Innovation Institute -DERC	46	Lightning response of distribution lines equipped with shield wires and surge arrester Farhad Rachidi - Swiss Federal Institute of Technology-EPFL	39	Simulating an Open Coaxial Return Line in a Reverberation Chamber Alexander Schoisl - Airbus Defence and Space
12:00-12:20	83	Development of Standing Wave Oscillator-Fed Antenna Array for Compact HPEM Applications Joseph Scott Tyo - Monash University	36	Lightning Electromagnetic Fields Computation: An Approach to Reduce the Computational Effort Daniele Mestriner - University of Genoa	52	An Efficient Computer Code for the Analysis of Grounding Systems Using the Method of Moments Marcos Rubinstein - University of Applied Sciences of Western Switzerland
12:20-12:40	14	Influence of mast positioning on ship RCS Nemanja Grbić - Vlatacom Institute	67	State of the art on the use of Conductive Fabrics for Lightning Protection John Pantoja - Technology Innovation Institute - DERC	97	On the Modeling of the Initial Stage of the Electric Explosion Process of a Wire Array Ali Alhammadi - Technology Innovation Institute - DERC
12:40-13:00	58	Direction Finding System Based on an Additively Manufactured Stackable Luneburg Lens Mae AlMansoori - Technology Innovation Institute - DERC	78	Climate Change and its Impact on Lightning Protection Practices Zainal Abidin HARTONO - Lightning Protection Consultant	17	The Regge Method for a Vertical Half-Circular Loop above Conducting Ground Sergey Tkachenko - Otto-von-Guericke Universität Magdeburg
13:00-14:30	Lunch Break					

Time	AI Mudhaif 2		AI Khaznah 1		AI Khaznah 2	
14:30-15:30	TC09 ID	Antenna Design/Radiation Felix Vega, Fernando Albarracin	TC06 ID	Lightning EM Effects/ Measurement Farhad Rachidi, Marcos Rubinstein	TC12 ID	Explosive Devices - Effects and Protection Felix Vega
14:30-14:50	92	Design of Unmanned Aerial Vehicle for Synthetic Apertures Radar Applications Jarrah Alhammadi - Technology Innovation Institute - DERC	101	On the Influence of Luminous- and-Grounded Channel on the Radiated Electric Fields at Close Distance in Rocket-Triggered Lightning Quanxin Li - Tsinghua University	53	Landmine Detection Using Electromagnetic Time Reversal Based Methods Farhad Rachidi - Swiss Federal Institute of Technology-EPFL
14:50-15:10	66	Ant Nests detection under Forest Coverage by Drone Borne Radar Survey Luciano de Oliveira - Technology Innovation Institute - DERC			64	An Unmanned Aerial Vehicle Platform for the detection of Landmines and IEDs using GPR Asilah Almesmari - Technology Innovation Institute - DERC
15:10-15:30					103	On the use of Convolutional Neural Networks to Classify Objects in GPR Scans Sultan Abughazal - Mohamed Bin Zayed University of Artificial Intelligence
15:30-16:00	Coffee Break Afternoon					
16:00-17:00	TC10	Statistical Methods in HPEM, Lars-Ole Fichte				
	TC08 ID	Bioeffects/Medical Applications of EM, Lars-Ole Fichte				
16:00-16:20	45	Random Coupling Model for Wave-Chaotic Cavity with Aperture Excitation Hong Soo Park - Soongsil University				
16:20-16:40	37	Use of Reconfigurable Intelligent Surfaces to Modify the Statistical Electromagnetic Properties of Complex Enclosures Steven Anlage - University of Maryland				
16:40-17:00	86	On solutions to the bio-heat equation Lars Ole Fichte - HSU				

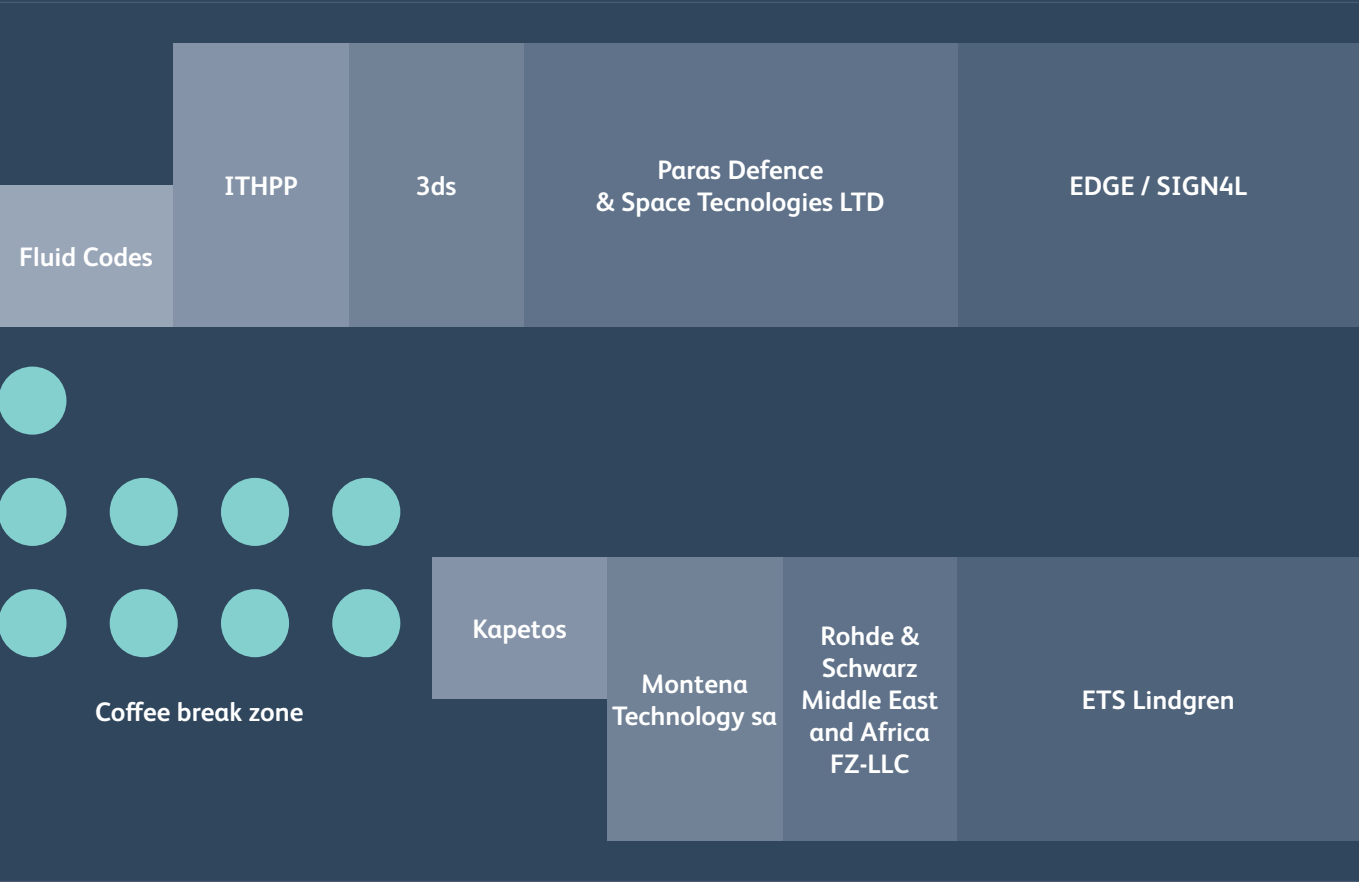
Time	AI Mudhaif 2		AI Khaznah 1		AI Khaznah 2	
9:00-10:30	Plenary 1 Session in AIMudhaif 2					
9:00-9:40	H.E. Faisal AlBannai - Abu Dhabi Technology Research Council - ATRC Investment of UAE in Directed Energy R&D and related capabilities					
9:40-10:20	Prof. Mérouane Debbah - Technology Innovation Institute - AIDRC Reconfigurable Intelligent Surfaces for Wireless Communications: An idea whose time has come					
10:30-11:00	Coffee Break Morning					
11:00-13:00	Plenary 2 Session in AIMudhaif 2					
11:00-11:40	Filip Kostomlatsky - Sign4I Electronic Warfare and Directed Energy Programs of Edge					
11:40-12:20	Dr. Richard Hoad - QinetiQ An overview of HPEM and Directed Energy related Capabilities at Qineti					
12:20-13:00	Prof. Edl Schamiloglu - University of New Mexico The Directed Energy Center at the University of New Mexico (DEC@UNM)					
13:00-14:30	Lunch Break					
14:30-15:30	TC01 ID	Sources, Antennas and Facilities Dave Giri	SS02 ID	High Energy Lasers and Effects on Materials Guillaume Matras, Steevy Cordette	TC04 ID	IEMI Threats/Effects/Protection Bill Radasky, Richard Hoad
14:30-14:50	19	Characterization of a 38-kJ Capacitive Source for an Electromagnetic Accelerator Aaisha AlAli - Technology Innovation Institute - DERC	5	High-Power Fiber Laser-Induced Damage on the Surface of a Quadcopter Drone Taif Ahmed Alhmoudi - Technology Innovation Institute - DERC	12	Study on the Effect of HPEM Pulse on RF Front-end Woosang Lee - Agency for Defense Development
14:50-15:10	55	Investigation of Electrode Erosion in Gas-Filled Spark Gap Switch Abdul Baba - Technology Innovation Institute - DERC	90	High Power CW Laser-induced Thermal Effects on an Electronic Device Safa AlHosani - Technology Innovation Institute - DERC	34	Destruction Scenario of Power Supply Due to Conducted Pulse from HEMP Guillaume Mejeceaze - CEA, DAM, CEA-Gramat
15:10-15:30	69	Cathode Edge Effect and Divergence of Emitted Electron Beams in Vircators Moza Mohamed - Technology Innovation Institute - DERC	93	Multi-kW Class CW Laser-induced Damage Assessment of Metals and Carbon Fiber in a Mobile Research Laboratory Amit Dubey - Technology Innovation Institute - DERC	30	MOSFET Failure Modelling in Flyback SMPS Under High Level Conducted Electrical Pulses Laurine Curos - CEA, DAM, CEA-Gramat
15:30-16:00	Coffee Break Afternoon					
16:00-17:00	TC01	Sources, Antennas and Facilities Dave Giri	SS02	High Energy Lasers and Effects on Materials Guillaume Matras, Steevy Cordette	TC04	IEMI Threats/Effects/Protection Bill Radasky, Richard Hoad
16:00-16:20	61	Experimental Investigation of the Breakdown Voltage of Nitrogen (N2) and Sulfur Hexafluoride (SF6) Gaseous Mixture Using Experimental and Numerical Methods Mohamed AlYousef - Technology Innovation Institute - DERC	75	Laser generated EMP at LMJ-PETAL facility: EMP mitigation and equipment protection Bertrand Etchessahar - CEA	24	Summary of Lessons Learned to Date from Trial Deployment of HPEM Detectors Richard Hoad - QinetiQ Ltd
16:20-16:40	88	Study of Post Breakdown Arc Resistance in Argon and Nitrogen Gas-filled Spark Gap Switch John Pantoja - Technology Innovation Institute - DERC	42	High Power Laser in industry Asma AlAhmadi - Technology Innovation Institute - DERC	76	IEMI Detection. Setting up relevant detection threshold Nicolas Ribière-Tharaud - CEA
16:40-17:00	84	On the use of Doubly Conformal Electrodes in Vacuum Diodes for High Power Microwave Application Ernesto Neira - Technology Innovation Institute - DERC	9	High-Power Laser Diode Beam Shaping for Incoherent Combining Juan Coronel - Technology Innovation Institute - DERC	82	Time Domain Measurement of IEMI Shielding Effectiveness of Wire Meshes Edward Savage - Metatech Corporation
18:00-23:00	Outdoor dinner with GulfDunes					

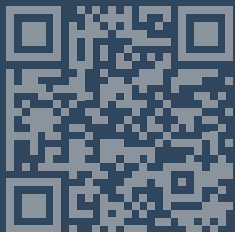
Time	AI Mudhaif 2	AI Khaznah 1		AI Khaznah 2	
9:00-10:30	Plenary 3 Session in AIMudhaif 2				
9:00-9:40	Dr. Rene Reimann - Technology Innovation Institute - QRC Optically Levitated Quantum Sensors				
9:40-10:20	Dr. Felix Vega - Technology Innovation Institute - DERC Development of HPEM Systems in the UAE				
10:30-11:00	Coffee Break Morning				
11:00-13:00	Plenary 4 Session in AIMudhaif 2				
11:00-11:40	Dr. Nicolas Mora - Technology Innovation Institute - DERC Introduction to the HPEM Laboratory and testing activities at DERC				
11:40-12:20	Dr. Isabelle Junqua - ONERA Evaluation of RF indoor environment by Electromagnetic Topology and Power Balance concepts: Theory and applications				
12:20-13:00	Prof. Farhad Rachidi and Marcos Rubinstein - Swiss Federal Institute of Technology -EPFL, University of Applied Sciences HEIG-VD Guiding lightning with High-Power Lasers: Experiments at the Säntis Tower in Switzerland				
13:00-14:30	Lunch Break				
14:30-15:30		TC02 ID	Coupling/Structures/Cables Jean-Philippe Parmantier	TC05 ID	System Level Protection and Testing Armin Kaelin
14:30-14:50		25	Electromagnetic Shielding in Rock Tunnels Jostein Godø - Forsvarsbygg (NDEA)	59	Protection of Control, Signal, and Data Points of Entry Against HEMP Sergio Longoria - ETS-Lindgren Inc.
14:50-15:10		79	Circuit Model of Multiconductor Lines Excited by an Incident Plane Wave Moustafa Raya - Otto von Guericke University Magdeburg	60	Problems and Best Practices in Protecting Data Lines Against HEMP Sergio Longoria - ETS-Lindgren Inc.
15:10-15:30		89	A Time-Reversal Cavity for Electromagnetic Waves in Transmission Line Networks with an Arbitrary Topology Elias Le Boudec - Swiss Federal Institute of Technology-EPFL	50	Use of Reconfigurable Intelligent Surfaces for Protection of Sensitive Devices in Complex Enclosed Scattering Environments Steven Anlage - University of Maryland
15:30-16:00	Coffee Break Afternoon				
16:00-17:00		TC02	Coupling/Structures/Cables Jean-Philippe Parmantier	TC05	System Level Protection and Testing Armin Kaelin
				TC07	Analytic and Numerical Modeling Sergey Tkachenko
16:00-16:20		38	Coupling of Microwave Pulses to Complex Enclosures: Analytical and Numerical Modeling and Experiments Steven Anlage - University of Maryla	48	Materials For Protection Against High Power Electromagnetic Impact Natallia Nasonova - Proton R&D Innovations
16:20-16:40				100	Fast Turn on Circuit Model of Puck-style Metal Oxide Varistors Jane Lehr - University of New Mexico
16:40-17:00				43	Electromagnetic Fields in and around an Enclosure for HEMP E1 Excitation D. V. Giri - PRO-TECH
19:00-22:00		Awards Dinner in AIMudhaif 2			

Time	AI Mudhaif 2		AI Khaznah 1		AI Khaznah 2	
9:00-10:30	TC01 ID	Sources, Antennas and Facilities Dave Giri	TC03 ID	Measurement Techniques Marcos Rubinstein, Nicolas Mora	TC17 ID	Evaluation of HEMP/IEMI Impacts on Critical Infrastructures Bill Radasky
9:00-9:20	70	Towards High-Power Microwaves Alexandra Gurinovich - Research Institute for Nuclear Problems of Belarusian State University	33	EMC Capabilities at TII Islem Yahi - Technology Innovation Institute - DERC	22	HEMP Coupling Measurement and Assessment of a Modern Electrical Substation Richard Hoad - QinetiQ Ltd
9:20-9:40	18	Design and Modeling of a Tesla Transformer for HPM Sources Gideon Nimo Appiah - Technology Innovation Institute - DERC	29	Aircraft Detection Using HF Radar Pavle Petrovic - Vlatacom Institute, Belgrade	81	E1 HEMP Exposure of Ungrounded Shielded Cables Edward Savage - Metatech Corporation
9:40-10:00	62	Compact and Efficient Mode Converter for HPEM Applications in L Band Luciano de Oliveira - Technology Innovation Institute - DERC	94	Simulation supporting certification Jean-Christophe JOLY - CEA	6	Real-time Substation Shielding Compromise and HPEM Event detection Eric Easton - Centerpoint Energy
10:00-10:20	95	Design of X-band Absorbers for Simultaneous Attenuation of Impinging Waves at Grazing Angles Agostino Monorchio - University of Pisa	91	Considerations for a Real Time Measurement and Processing System for HPEM Fields Edrees Almansoori - Technology Innovation Institute - DERC	7	Financial Comparative Analysis of Substation EMP Mitigation Approaches Eric Easton - Centerpoint Energy
10:30-11:00	Coffee Break Morning					
11:00-13:00	TC01 ID	Sources, Antennas and Facilities Dave Giri	TC03 ID	Measurement Techniques Marcos Rubinstein, Nicolas Mora	TC07 ID	Evaluation of HEMP/IEMI Impacts on Critical Infrastructures Bill Radasky
	SS03	Dave Giri: Career and Times Carlos Romero			TC14 ID	Evaluation of HEMP/IEMI Impacts on Critical Infrastructures Edward Savage
11:00-11:20	71	Tolerances in FCG Design: Theory Sergei Anishchenko - Research Institute for Nuclear Problems of Belarusian State University	20	Determination of the Complex Permittivity of E-glass and Balsa wood using a Rectangular Shaikha AlDhaheiri - Technology Innovation Institute - DERC	87	Use of C-UAS System and Its EM Effect Analysis TaeHeon Jang - Korea Testing Laboratory (KTL)
11:20-11:40	57	The Concept of a Switched Oscillator Box Array: Resonant Source for HPEM Applications Mae AlMansoori - Technology Innovation Institute - DERC	28	Spectral Response of the Conical Monopole Sensor Calibration Setup Hamad Deiban - Technology Innovation Institute - DERC	98	GMD Impacts on High Voltage Power Grids - Lessons Learned William Radasky - Metatech Corporation
11:40-12:00	63	Single Layer Microstrip Gysel Combiner for High- Power CW Applications Bharathidasan Sugumaran - Technology Innovation Institute - DERC	21	RCS Measurement Technique in Semi-Anechoic Chamber Papa Leye - Technology Innovation Institute - DERC	85	Magnetic Field Pattern Effects on Surface Impedance for Late-Time HEMP and Geomagnetic Disturbances William Radasky - Metatech Corporation
12:00-12:20	65	Fast L-band demonstrator for Remote Induction of Disturbance for Access Denial (RIDAD) Adamo Banelli - Technology Innovation Institute - DERC	31	Design of a Dielectric Waveguide Sensor for Pseudo-Transmission Measurements Christoph Baer - Ruhr University Bochum	23	A Resilience based Approach to HPEM Threat Mitigation Richard Hoad - QinetiQ Ltd
12:20-12:40	72	A Concept for High-Power UWB Radiator Based on the Dipole-Reflector-Director Configur Mariam AlMenhali - Technology Innovation Institute - DERC	27	Extrapolation of truncated transfer functions for compensating time-domain measurements David Martinez - Technology Innovation Institute - DERC		
12:40-13:00	54	Electric Field Radiation from the Tapered Impedance Half Impulse Radiating Anten Felix Vega - Technology Innovation Institute - DERC	77	On the use of the Gabor Transform to Study the Instability Growth Time in Vircators Nouf AlEissae - Technology Innovation Institute - DERC		
13:00-14:30	Lunch Break					

Time	AI Mudhaif 2		AI Khaznah 1	AI Khaznah 2
14:30-15:30	SS03	Dave Giri: Career and Times Carlos Romero		
14:30-14:50	35	Overview of Collaborative Efforts over Several Decades in Pulse Power and Antennas D. V. Giri - PRO-TECH		
14:50-15:10	99	The JOLT System: A Retrospective Jane Lehr - University of New Mexico		
15:10-15:30	26	David V. Giri, Switzerland's HPEM Conveyor Armin Kaelin - EMProtec		
15:30-16:00	Coffee Break Afternoon			
16:00-17:00	SS03	Dave Giri: Career and Times Carlos Romero		
16:00-16:20	41	The Definition of the Rise Time of Impulse Signals Carlos Romero - armasuisse Science and Technology		
16:20-16:40	11	Ultra-wide band radar system using impulse radiating antennas in The Netherlands Peter Zwamborn - TNO Defence, Safety and Security		
16:40-17:00	40	The "Arreghini's Problem" challenge Jean-Philippe PARMANTIER - ONERA		

Exhibition location – Al Mudhaif 3





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