UNM | Electrical & Computer Engineering

SUMMA FOUNDATION

AMEREM 2014

PROGRAM BOOK

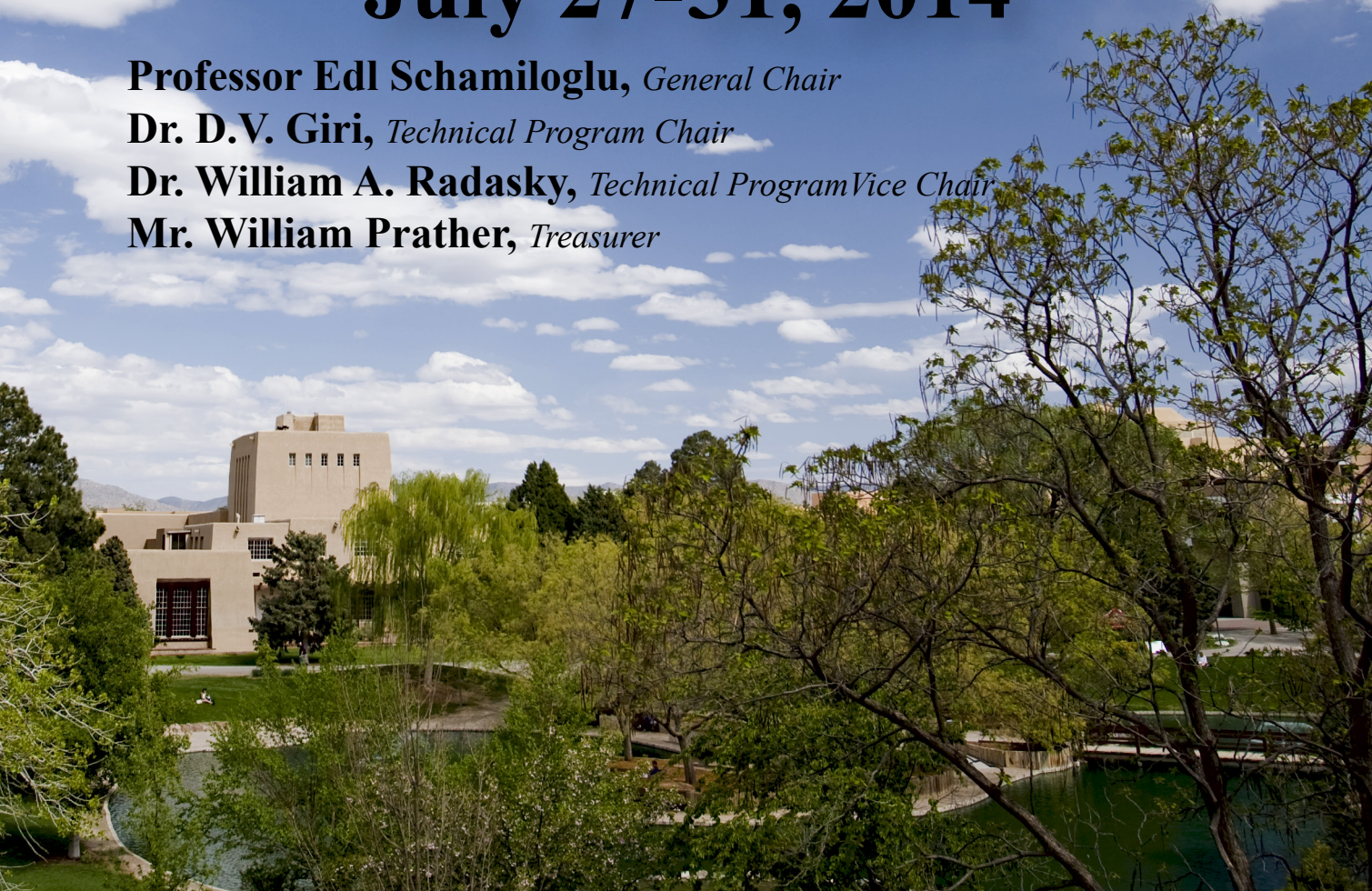
www.ece.unm.edu/amerem2014

University of New Mexico

Albuquerque, New Mexico, USA

July 27-31, 2014

Professor Edl Schamiloglu, *General Chair*
Dr. D.V. Giri, *Technical Program Chair*
Dr. William A. Radasky, *Technical ProgramVice Chair*
Mr. William Prather, *Treasurer*



THE UNIVERSITY of NEW MEXICO

New Mexico's flagship university

One of the top 100 worldwide universities granted U.S. utility patents in 2013

- *National Academy of Inventors* and *Intellectual Property Owners Association*

www.unm.edu

The organizers of AMEREM-2014 express their appreciation to the US Office of Naval Research (ONR) for their support of this conference!

www.onr.navy.mil

Mr. Lee Mastroianni - ONR Code 030
Mr. Ryan Hoffman - ONR Code 035

General Chair

Edl Schamiloglu
President, SUMMA Foundation

The organizers of AMEREM-2014 warmly welcome you to Albuquerque, NM, USA at the southern end of the Rocky Mountains. The conference provides one of the most important forums within the international scientific and engineering community in High-Power Electromagnetics with presentations from more than 25 countries, offering an attractive program that includes the latest advances in theory and applications.

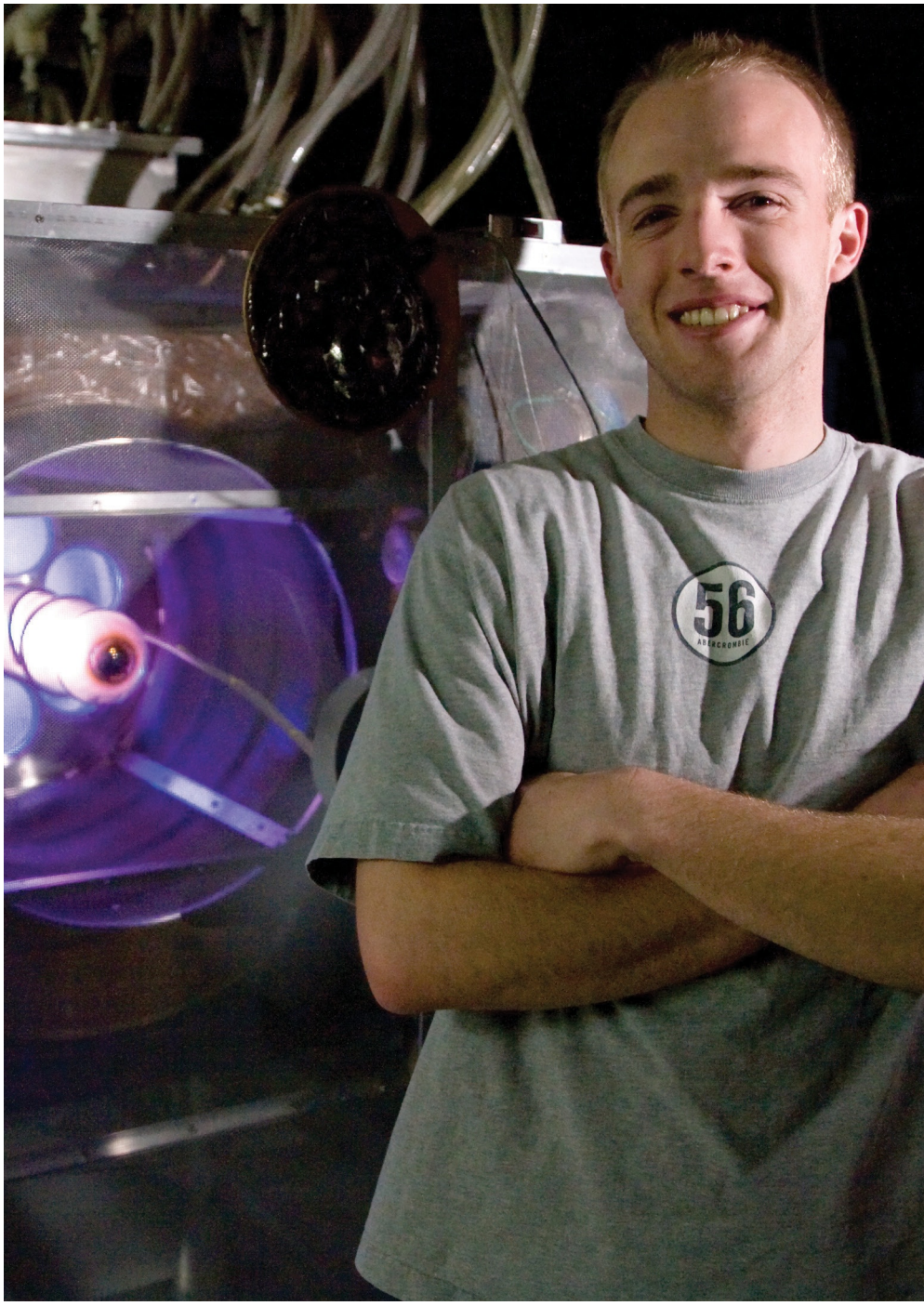
The AMEREM/EUROEM meetings have a rich history behind them. In 1978, the late Dr. Carl Baum organized the first Nuclear Electromagnetic Pulse Meeting or the NEM in Albuquerque, NM with support from his Summa Foundation.

This first meeting brought together scientists/engineers from the U.S. and Western Europe. At some point, the NEM was renamed as the High-Power Electromagnetics Meeting or HPEM. When this meeting was held in 1994 in Bordeaux, France, it was renamed EUROEM and subsequently, the meetings in North America have been called AMEREM. These meetings have been held in every even year since 1978.

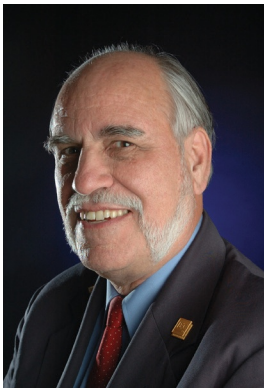
With regards to Ultra-wideband/Short Pulse or UWB/SP, the first two meetings were held in Brooklyn Polytechnic, in New York. After these initial meetings Prof. Leo Felsen asked Carl Baum to include them in AMEREM/EUROEM and presentations in these meetings have been turned into full–length papers resulting in the publication of 10 books, titled Ultra-Wideband, Short Pulse Electromagnetics. In recent times, these books have been published by Springer.

In addition to the technical program and exhibits, we will be hosting a Welcome Reception at the University of New Mexico on Sunday evening, July 27, and an awards banquet at the National Museum of Nuclear Science & History on July 30.

We now welcome you to AMEREM-2014, back to where it all started, at the University of New Mexico in Albuquerque, NM, USA. We hope you will enjoy the technical program and enjoy your visit to the Land of Enchantment!


56
ABERCROMBIE

Dear Members of the HPEM Community



Dr. William Radasky
Vice-Chair, TPC

On behalf of the Technical Program Committee (TPC), it is a pleasure to welcome you to AMEREM 2014!

We have planned an exciting Technical program consisting of both oral and poster presentations. In addition we have several exhibitors presenting their hardware and services. HPEM (High-Power Electromagnetics) is an all encompassing term consisting of natural and triggered lightning, HEMP, IEMI and high–power electromagnetic systems producing EM fields in narrowbands, mesobands, sub-hyperbands and hyperbands. To cover this vast technical area, we formed 8 Technical Committees (TCs) in HPEM, 3 TCs in UWB, 1 TC in UXO and 1 TC for a poster session (note that while UWB and UXO EM fields are part of HPEM, we have separate TCs for historical reasons). Each of these TCs has a Chair and Co-Chair soliciting submissions and organizing special sessions. We received 148 abstract submissions from 25 countries. This is indeed impressive considering the number of meetings in related areas this year. This success has been possible because of the efforts of the TC Chairs and Co-Chairs. We are grateful to each one of them. This time around, the special session organizers deserve a debt of gratitude for assembling high-quality presentations in diverse areas including – Statistical Tools in HPEM and HPEM-Impacts/Protection on Critical Infrastructures in Europe.

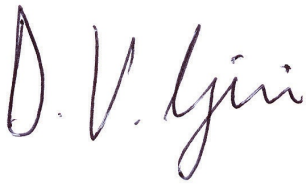
It was no easy task to cycle through the review process and organize the papers into coherent technical sessions. The on-line review process worked well, and we are thankful to all of the reviewers. The TPC and the Symposium Chair worked well together to serve up an exciting technical program.

Dr. D. V. Giri
Chair, TPC & V P, SUMMA

As per tradition, the Awards Committee of the SUMMA Foundation will honor the winners of the Best Basic and Applied Papers published in the NOTE series during 2012 and 2013. The Fellows Committee of the SUMMA Foundation will also honor the incoming HPEM Fellows. These recognitions will take place during the Banquet on Wednesday, July 30, 2014. We also plan to collect some selected papers from AMEREM 2014 to publish as UWB SP 11.

The TPC is thankful to Prof. Edl Schamiloglu (Symposium Chair) and Dr. John Gaudet (Local Organizing Committee) who helped us in designing the Technical Program on that “Taxing day” of April 15, 2014.

We do hope you will find this to be a rewarding and useful program. Please do plan to take some time out to enjoy the Southwestern cuisine and the sights of this historic city of Albuquerque, which is at the cross roads of many cultures! Then you should begin to think about ASIAEM 2015 in Jeju Island, Republic of Korea and EUROEM 2016 in London!



Technical Committees		
Symposium General Chair	**Edl Schamiloglu**	University of New Mexico
Symposium Treasurer	**William Prather**	Air Force Research Laboratory
Technical Program Committee (TPC) Chair	**Dave Giri**	Pro-Tech
Technical Program Committee (TPC) Vice-Chair	**William Radasky**	Metatech
Exhibition Committee Chair	**Mike Caruso**	ETS-Lindgren

Technical Committee	Broad Area	Description	Chair Vice-Chair
TC1	HPEM	Sources, Antennas and Facilities (both wideband and narrowband)	**William Prather** **Dave Giri**
TC2	HPEM	Applications of Coupling to Structures and Cables	**Mats Bäckström** **Lars Fichte**
TC3	HPEM	Measurement Techniques	**Frank Sabath** **Anthony Wraight**
TC4	HPEM	IEMI Threats, Effects and Protection	**William Radasky** **Richard Hoad**
TC5	HPEM	System-level Protection and Testing	**Armin Kaelin** **Tae-Heon Jang**
TC6	HPEM	Lightning EM Effects	**Farhad Rachidi** **Marcos Rubinstein**
TC7	HPEM	Analytical and Numerical Models and Modeling	**JP Parmantier** **Sergei Tkachenko**
TC8	HPEM	Bioeffects and Medical Applications of EM Fields	**Jayanti Venkataraman** **Ravindra Joshi**

Technical Committee	Broad Area	Description	Chair Vice-Chair
TC9	UWB	Antenna Design, Radiation and Propagation	**Dave Giri** **Everett Farr**
TC10	UWB	Radar Systems (Signal Processing and Security Aspects)	**George Baker** **Paul Robert Hayes**
TC11	UWB	Target Detection, Discrimination and Imaging	**Dominique Serafin** **James Tatoian**
TC12	UXO	Landmine and IED Detection and Neutralization	**Michael Lambrecht** **Andrew Greenwood**

Special Sessions			
SS01	HPEM	Statistical Tools in HPEM	**Chaouki Kasmi** **Robert Gardner**
SS02	HPEM	Protection of the European Critical Infrastructures from IEMI	**Richard Hoad** **Odd-Harry Arnesen**

We would like to thank our exhibitors for your support!

The University of New Mexico School of Engineering's COSMIAC Center	CST of America
AR RF/Microwave Instrumentation	Electro Magnetic Applications, Inc.
Farr Fields	Kapteos
Fitelnet	PRODYN Technologies, Inc.

About the SUB

The Student Union Building (SUB) at the University of New Mexico acts as a community center to students, staff, and faculty. The SUB creates a sense of community for the student life population through the many programs and services that take place within the building. The SUB is a leader on campus and provides many high-tech conveniences, essential services, and cultural enrichments to the UNM community.

The University of New Mexico SUB's mission is to maintain the highest standard in support, services, and programming in order to promote a strong sense of community and student life. It is a place where UNM students, faculty, staff, alumni, and guests can congregate and socialize in an environment that promotes an appreciation for diversity. The goals of the SUB support the University's mission.

The SUB is located in the center of the UNM Main Campus, North of Central Ave. Use the map to the right when visiting the SUB.

Points of interest on the map:

1. UNM Welcome Center and Cornell Parking Structure — Use the parking structure when visiting the SUB.
2. UNM Bookstore
3. Popejoy Hall
4. UNM Johnson Center/Recreation Facility, UNM Student Health Center
5. UNM Student Health Center
6. **New Mexico Student Union Building**

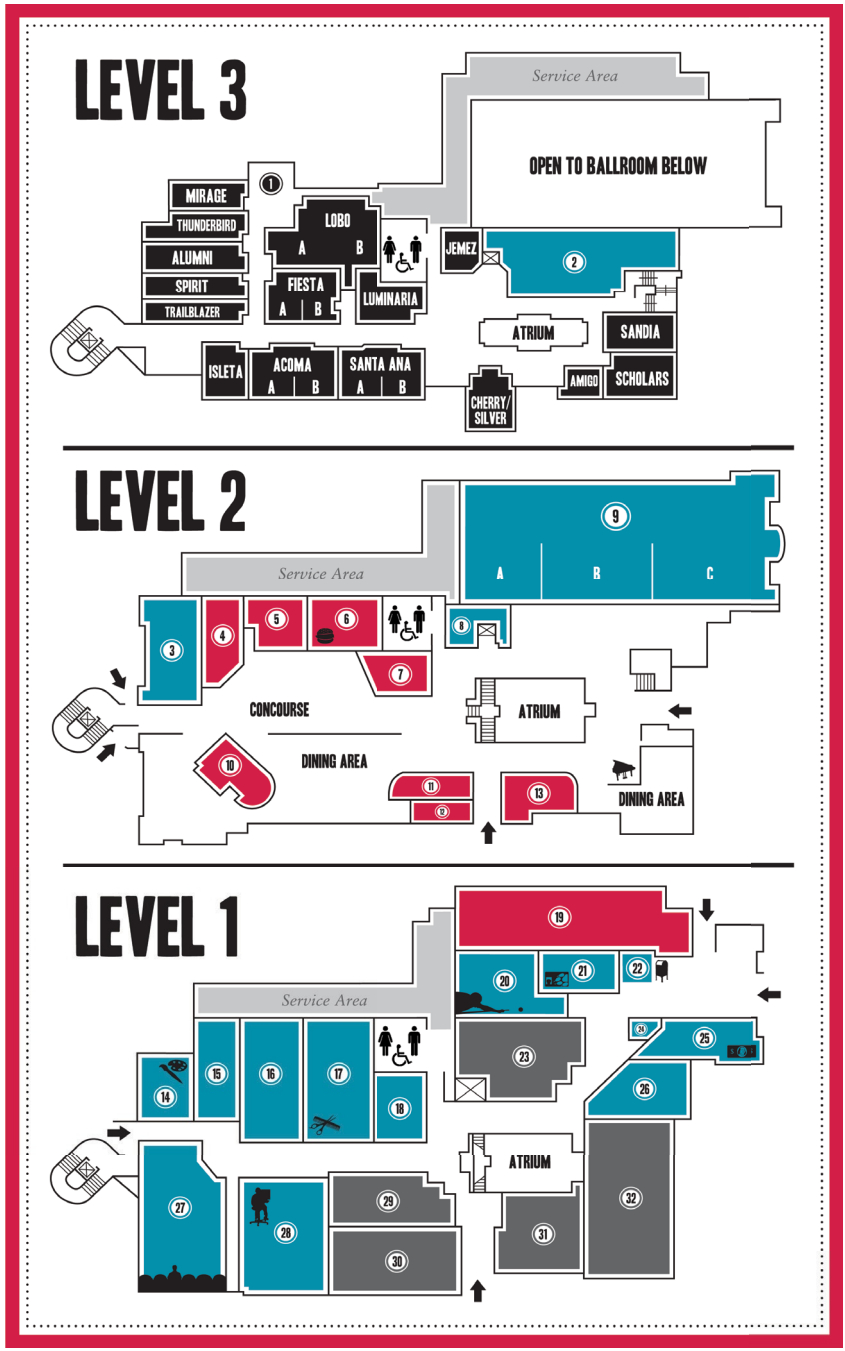
Welcome to the University of New Mexico Student Union!

1. MEETING ROOMS
2. SUB ADMINISTRATION OFFICES
3. UNM VETERANS RESOURCE CENTER (VRC)
4. GARCIA'S KITCHEN
5. MANDALAY EXPRESS
6. SONIC
7. CHICK-FIL-A
8. WELCOME/INFORMATION DESK
9. GRAND BALLROOM
10. SAGGIO'S
11. TIMES SQUARE DELI
12. SAHARA
13. SATELLITE COFFEE
14. ASUNM ARTS & CRAFTS STUDIO
15. ASUNM SOUTHWEST FILM CENTER (SWFC)
16. UNM EVENT PLANNING & SCHEDULING OFFICE
17. HOOK-YOU-UP! BARBERSHOP & SALON
18. UNM DINING SERVICES OFFICE
19. MERCADO CONVENIENCE STORE
20. LOUIE'S LOUNGE
21. LOBOCARD OFFICE
22. ATM MACHINES, COPY MACHINE AND POSTAL KIOSK
23. STUDENT ORGANIZATIONS
24. TRANSPORTATION INFORMATION CENTER (TIC)
25. NEW MEXICO EDUCATORS FEDERAL CREDIT UNION
26. CASAS DEL RIO LEASING OFFICE
27. MOVIE THEATER
28. LOBO [COMPUTER] LAB
29. ASSOCIATED STUDENTS OF UNM (ASUNM) OFFICE
30. STUDENT ACTIVITIES CENTER (SAC)
31. GRADUATE & PROFESSIONAL STUDENT ASSOCIATION (
32. LOBO LAIR

MAP KEY

- ELEVATOR
- BUILDING ENTRANCE
- STAIRS
- AMENITIES/SERVICES
- FOOD/DRINK
- STUDENT ORGANIZATIONS
- MEETING ROOMS

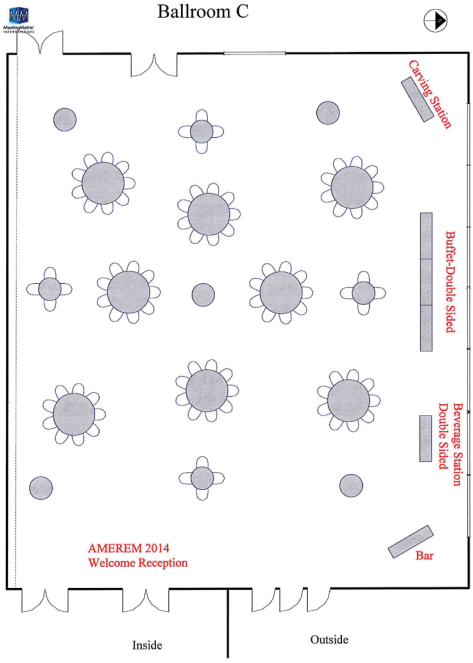
There are three levels of the Student Union (SUB):

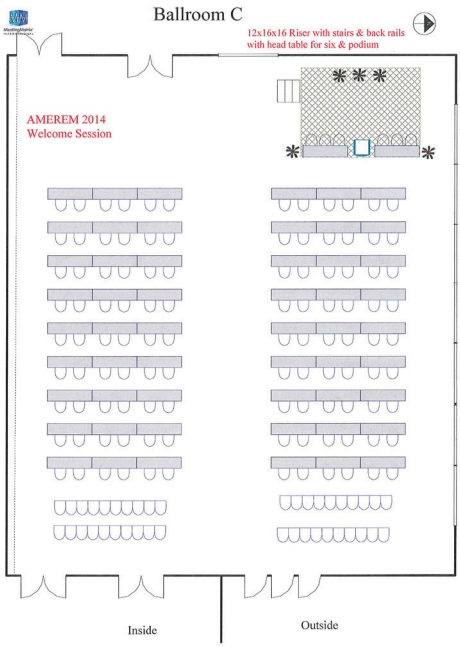


Meeting Rooms are on Level 3; Ballroom C is on Level 2

Welcome Reception Sunday, July 27

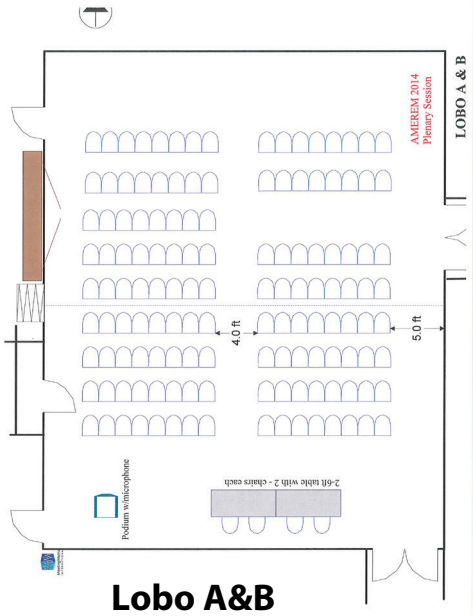
Ballroom C (Level 2)



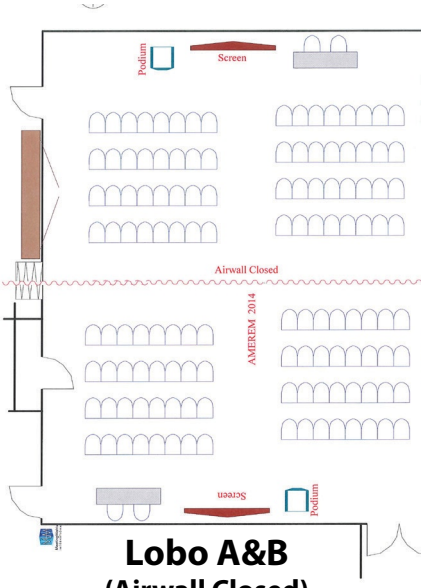


Welcome Session Monday, July 28

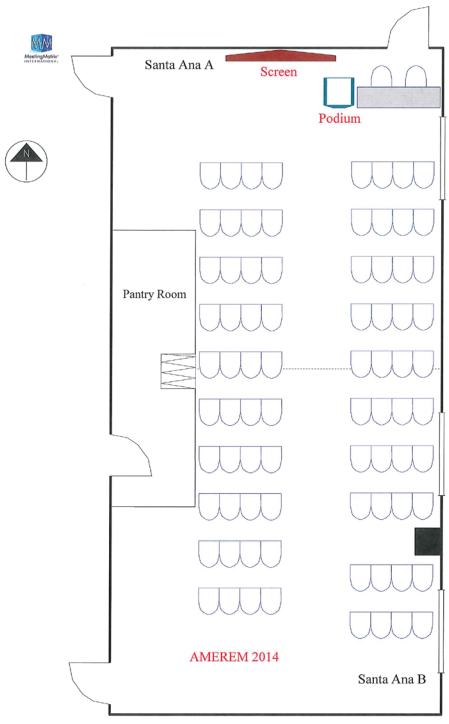
Meeting Rooms (Level 3)



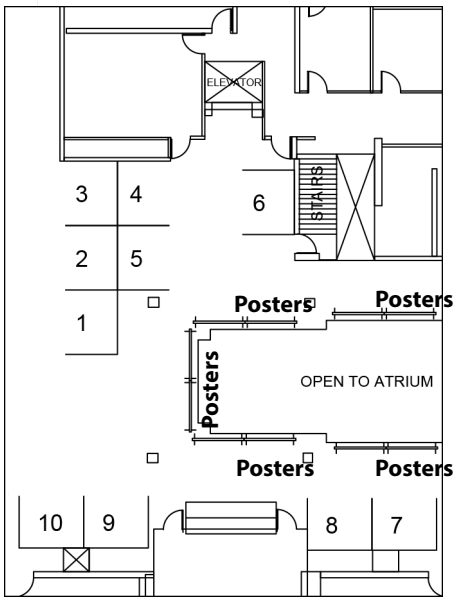
Lobo A&B



Lobo A&B
(Airwall Closed)



Santa Ana AB



Exhibitors & Posters (Atrium)

SOCIAL EVENTS

Welcome Reception - Sunday July 27, 2014 7:00 PM

There will be a catered social reception following registration in Ballroom C of the SUB. Buses will be provided to return attendees to the DoubleTree Hotel following the reception. The Welcome Reception is open to all registrants and to companions who purchased a ticket.

Awards Banquet - Wednesday July 30, 2014 6:00 PM

The Awards Banquet will take place at the The National Museum of Nuclear Science & History (**http://www.nuclearmuseum.org**) beginning at 6:00 PM. Buses will be provided from the University of New Mexico and from the Double Tree. Those with cars can drive directly to the museum. You can find directions at:

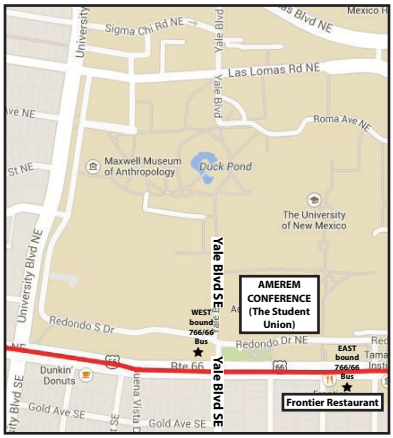
http://www.nuclearmuseum.org/visit/general-information

The National Museum of Nuclear Science & History
601 Eubank Blvd SE, Albuquerque, NM 87123

Phone: 505 245-2137

Getting Around Albuquerque by Car or Bus

All registered attendees at AMEREM 2014 will have the option of receiving a four-day city bus pass or parking pass that can be used at the parking garage across the street from the UNM Bookstore. The garage is located on the UNM Campus at 2301 Central Ave SE, between Cornell Dr SE and Harvard Dr SE, across from the Frontier Restaurant.



The following is an overview of the Albuquerque bus system that will help to make your experience more enjoyable:

Most of the conference will be spent between downtown Albuquerque and the University. This means you will be taking a bus up and down Central Avenue. There are three buses that travel this route: the 766 Red Line and 777 Green Line Rapid Ride buses, and the 66 local bus.

A Rapid Ride bus is a 60-foot articulated bus twice the size of the local bus, with air conditioning, WI-FI and caters to a crowd of students and professionals. The local buses (66 bus) can be very crowded so we recommend that you avoid them if possible.

The 766 or the 777 Rapid Ride bus can take you directly from the bus stop at Central and Yale to the drop off point opposite the Albuquerque Transit Center, downtown. At this point you can get off the bus and have easy access to the mouth of Central Avenue and all the stores, restaurants and bars that line a famous stretch of road known as “Route 66.” This is also the place that you would get off if you happen to be staying at the DoubleTree Hotel, the Andaluz or the Hyatt: Those hotels are only a few short blocks away!

The 766 bus can also take you all the way to Old Town and the Aquarium but remember: the 777 stops at the downtown Albuquerque Public Library (1.3 miles before Old Town) and then circles back to UNM.

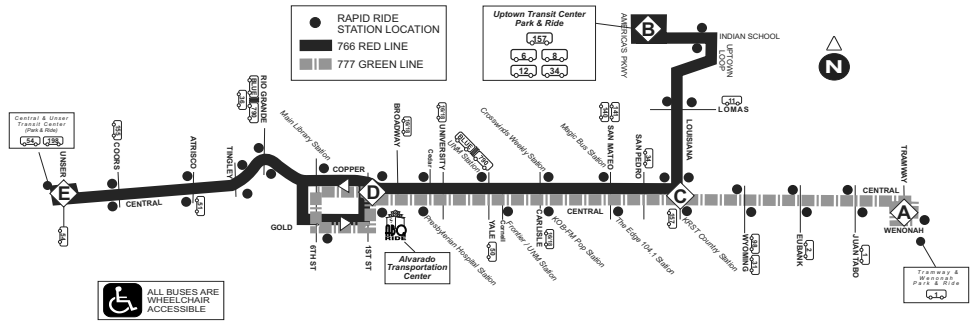
Note: Do not get on the 790 Blue Line bus! It looks just like the 766 and 777 Rapid Ride buses but it will take you to the middle of nowhere . If you accidentally get on this bus, you can return to the University downtown area by getting on the 766 or 66 bus from the “Old Town” stop at Central Ave. and Rio Grande Blvd.

When in doubt, ask the bus driver for help or call the City of Albuquerque Help Line at **505 768-2000 or try dialing 311**.

Albuquerque, New Mexico USA

766 Red Line Rapid Ride
777 Green Line Rapid Ride

Effective 12/15/2012



WESTBOUND

ROUTE	TRAMWAY & WENONAH P&R (A)	UPTOWN TRANSIT CENTER P&R (B)	CENTRAL & LOUISIANA (C)	ALVARADO TRANSPORTATION CENTER (D)	CENTRAL & UNSER TRANSIT CENTER P&R (E)
766	.....	5:31a	5:40a	5:53a	6:07a
777	5:38a	.....	5:48a	6:01a	.....
766	.....	5:47a	5:56a	6:09a	6:23a
777	5:54a	.....	6:04a	6:17a	.....
766	.....	6:03a	6:12a	6:25a	6:39a
777	6:10a	.....	6:20a	6:33a	.....
766	.....	6:19a	6:28a	6:41a	6:57a
777	6:25a	.....	6:35a	6:48a	.....
766	.....	6:34a	6:43a	6:56a	7:12a
777	6:39a	.....	6:50a	7:03a	.....
766	.....	6:47a	6:56a	7:11a	7:27a
777	6:52a	.....	7:03a	7:18a	.....
766	.....	7:02a	7:11a	7:26a	7:44a
777	7:07a	.....	7:18a	7:33a	.....
766	.....	7:17a	7:26a	7:41a	7:59a
777	7:23a	.....	7:34a	7:49a	.....
766	.....	7:33a	7:42a	7:57a	8:15a
777	7:38a	.....	7:50a	8:05a	.....
766	.....	7:49a	7:58a	8:13a	8:31a
777	7:54a	.....	8:06a	8:21a	.....
766	.....	8:05a	8:14a	8:29a	8:47a
777	8:10a	.....	8:22a	8:37a	.....
766	.....	8:21a	8:30a	8:45a	9:03a
777	8:26a	.....	8:38a	8:53a	.....
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766	.....	9:11a	9:20a	9:35a	9:53a
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766	.....	9:59a	10:08a	10:23a	10:41a
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766	.....	10:15a	10:24a	10:39a	10:57a
777	10:20a	.....	10:31a	10:47a	.....
766	.....	10:30a	10:39a	10:55a	11:14a
777	10:35a	.....	10:46a	11:03a	.....
766	.....	10:45a	10:54a	11:11a	11:31a
777	10:51a	.....	11:02a	11:19a	.....
766	.....	11:01a	11:10a	11:27a	11:47a
777	11:07a	.....	11:18a	11:35a	.....
766	.....	11:17a	11:26a	11:43a	12:03p
777	11:22a	.....	11:33a	11:50a	.....
766	.....	11:32a	11:41a	11:58a	12:19p
777	11:37a	.....	11:49a	12:06p	.....
766	.....	11:48a	11:57a	12:14p	12:35p
777	11:53a	.....	12:05p	12:22p	.....
766	.....	12:04p	12:13p	12:30p	12:52p
777	12:09p	.....	12:21p	12:38p	.....
766	.....	12:20p	12:29p	12:46p	1:08p
777	12:25p	.....	12:37p	12:54p	.....
766	.....	12:36p	12:45p	1:02p	1:24p
777	12:41p	.....	12:53p	1:10p	.....
766	.....	12:51p	1:01p	1:18p	1:39p

WEEKDAY

ROUTE	TRAMWAY & WENONAH P&R (A)	UPTOWN TRANSIT CENTER P&R (B)	CENTRAL & LOUISIANA (C)	ALVARADO TRANSPORTATION CENTER (D)	CENTRAL & UNSER TRANSIT CENTER P&R (E)
777	12:57p	.....	1:09p	1:26p	.....
766	.....	1:07p	1:17p	1:34p	1:55p
777	1:13p	.....	1:25p	1:42p	.....
766	.....	1:23p	1:33p	1:50p	2:10p
777	1:29p	.....	1:41p	1:58p	.....
766	.....	1:39p	1:49p	2:06p	2:26p
777	1:45p	.....	1:57p	2:14p	.....
766	.....	1:55p	2:05p	2:22p	2:42p
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766	.....	2:27p	2:37p	2:54p	3:14p
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766	.....	2:42p	2:52p	3:10p	3:32p
777	2:47p	.....	3:00p	3:18p	.....
766	.....	2:58p	3:08p	3:26p	3:48p
777	3:03p	.....	3:16p	3:34p	.....
766	.....	3:14p	3:24p	3:42p	4:04p
777	3:19p	.....	3:32p	3:50p	.....
766	.....	3:30p	3:40p	3:58p	4:20p
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766	.....	3:47p	3:57p	4:14p	4:36p
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766	.....	4:03p	4:13p	4:30p	4:52p
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766	.....	4:36p	4:45p	5:03p	5:25p
777	4:40p	.....	4:53p	5:11p	.....
766	.....	4:52p	5:01p	5:19p	5:41p
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766	.....	5:09p	5:18p	5:35p	5:57p
777	5:13p	.....	5:26p	5:43p	.....
766	.....	5:25p	5:34p	5:51p	6:10p
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766	.....	5:42p	5:51p	6:07p	6:26p
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766	.....	5:58p	6:07p	6:23p	6:41p
777	6:03p	.....	6:15p	6:31p	.....
766	.....	6:14p	6:23p	6:39p	6:57p
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766	.....	7:23p	7:32p	7:47p	8:04p
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766	.....	7:46p	7:55p	8:09p	8:26p
777	7:56p	.....	8:06p	8:20p	.....
766	.....	8:08p	8:17p	8:31p	8:48p
777	8:18p	.....	8:28p	8:42p	.....
766	.....	8:30p	8:39p	8:53p	9:10p
777	8:40p	.....	8:50p	9:04p	.....
706	.....	8:52p	9:01p	9:15p	9:32p

EASTBOUND

ROUTE	CENTRAL & UNSER TRANSIT CENTER P&R (E)	ALVARADO TRANSPORTATION CENTER (D)	CENTRAL & LOUISIANA (C)	UPTOWN TRANSIT CENTER P&R (B)	TRAMWAY & WENONAH P&R (A)
777	.....	5:34a	5:47a	.....	5:57a
766	5:32a	5:45a	5:58a	6:05a	.....
777	.....	5:53a	6:07a	.....	6:17a
766	5:48a	6:01a	6:15a	6:22a	.....
777	.....	6:09a	6:23a	.....	6:33a
766	6:02a	6:17a	6:31a	6:39a	.....
777	.....	6:25a	6:39a	.....	6:49a
766	6:18a	6:33a	6:47a	6:55a	.....
777	.....	6:41a	6:55a	.....	7:05a
766	6:34a	6:49a	7:03a	7:11a	.....
777	.....	6:57a	7:11a	.....	7:21a
766	6:50a	7:05a	7:20a	7:28a	.....
777	.....	7:14a	7:30a	.....	7:40a
766	7:04a	7:21a	7:39a	7:47a	.....
777	.....	7:28a	7:45a	.....	7:56a
766	7:20a	7:36a	7:54a	8:02a	.....
777	.....	7:44a	8:01a	.....	8:12a
766	7:32a	7:52a	8:09a	8:17a	.....
777	.....	8:00a	8:16a	.....	8:27a
766	7:48a	8:08a	8:24a	8:32a	.....
777	.....	8:16a	8:32a	.....	8:43a
766	8:04a	8:24a	8:40a	8:48a	.....
777	.....	8:32a	8:49a	.....	9:00a
766	8:22a	8:39a	8:56a	9:04a	.....
777	.....	8:46a	9:05a	.....	9:16a
766	8:35a	8:52a	9:10a	9:18a	.....
777	.....	9:02a	9:19a	.....	9:30a
766	8:55a	9:12a	9:28a	9:36a	.....
777	.....	9:21a	9:38a	.....	9:49a
766	9:12a	9:29a	9:45a	9:53a	.....
777	.....	9:37a	9:53a	.....	10:04a
766	9:28a	9:45a	10:01a	10:09a	.....
777	.....	9:53a	10:11a	.....	10:22a
766	9:44a	10:01a	10:19a	10:27a	.....
777	.....	10:09a	10:27a	.....	10:39a
766	10:00a	10:17a	10:35a	10:43a	.....
777	.....	10:25a	10:43a	.....	10:55a
766	10:16a	10:33a	10:52a	11:00a	.....
777	.....	10:41a	11:00a	.....	11:12a
766	10:32a	10:49a	11:08a	11:16a	.....
777	.....	10:57a	11:16a	.....	11:28a
766	10:48a	11:05a	11:25a	11:33a	.....
777	.....	11:13a	11:33a	.....	11:45a
766	11:04a	11:21a	11:41a	11:49a	.....
777	.....	11:29a	11:49a	.....	12:01p
766	11:20a	11:37a	11:57a	12:06p	.....
777	.....	11:45a	12:05p	.....	12:17p
766	11:36a	11:53a	12:16p	12:25p	.....
777	.....	12:01p	12:24p	.....	12:36p
766	11:51a	12:09p	12:33p	12:42p	.....
777	.....	12:17p	12:41p	.....	12:53p
766	12:07p	12:25p	12:49p	12:57p	.....
777	.....	12:33p	12:57p	.....	1:08p
766	12:23p	12:42p	1:05p	1:13p	.....
777	.....	12:50p	1:13p	.....	1:24p
766	12:39p	12:58p	1:21p	1:29p	.....
777	.....	1:06p	1:28p	.....	1:39p
766	12:56p	1:14p	1:36p	1:44p	.....

ROUTE	CENTRAL & UNSER TRANSIT CENTER P&R (E)	ALVARADO TRANSPORTATION CENTER (D)	CENTRAL & LOUISIANA (C)	UPTOWN TRANSIT CENTER P&R (B)	TRAMWAY & WENONAH P&R (A)
777	.....	1:22p	1:44p	.....	1:55p
766	1:12p	1:30p	1:52p	2:00p	.....
777	.....	1:38p	2:00p	.....	2:11p
766	1:28p	1:46p	2:08p	2:16p	.....
777	.....	1:54p	2:16p	.....	2:27p
766	1:44p	2:02p	2:24p	2:32p	.....
777	.....	2:10p	2:32p	.....	2:43p
766	2:00p	2:18p	2:40p	2:48p	.....
777	.....	2:26p	2:47p	.....	2:58p
766	2:16p	2:34p	2:55p	3:03p	.....
777	.....	2:42p	3:03p	.....	3:15p
766	2:32p	2:50p	3:11p	3:20p	.....
777	.....	2:58p	3:19p	.....	3:31p
766	2:48p	3:06p	3:27p	3:36p	.....
777	.....	3:14p	3:35p	.....	3:47p
766	3:04p	3:22p	3:43p	3:52p	.....
777	.....	3:30p	3:51p	.....	4:03p
766	3:20p	3:38p	3:59p	4:08p	.....
777	.....	3:46p	4:08p	.....	4:20p
766	3:36p	3:54p	4:16p	4:25p	.....
777	.....	4:02p	4:24p	.....	4:37p
766	3:52p	4:10p	4:32p	4:41p	.....
777	.....	4:18p	4:40p	.....	4:53p
766	4:08p	4:26p	4:48p	4:57p	.....
777	.....	4:34p	4:56p	.....	5:09p
766	4:24p	4:42p	5:04p	5:14p	.....
777	.....	4:50p	5:12p	.....	5:25p
766	4:40p	4:58p	5:20p	5:30p	.....
777	.....	5:06p	5:28p	.....	5:41p
766	4:56p	5:14p	5:36p	5:45p	.....
777	.....	5:21p	5:43p	.....	5:56p
766	5:13p	5:29p	5:50p	5:59p	.....
777	.....	5:37p	5:58p	.....	6:09p
766	5:29p	5:45p	6:06p	6:15p	.....
777	.....	5:53p	6:14p	.....	6:25p
766	5:45p	6:01p	6:19p	6:27p	.....
777	.....	6:09p	6:27p	.....	6:38p
766	6:01p	6:17p	6:35p	6:43p	.....
777	.....	6:25p	6:43p	.....	6:54p
766	6:17p	6:33p	6:51p	6:59p	.....
777	.....	6:41p	6:59p	.....	7:10p
766	6:33p	6:49p	7:07p	7:15p	.....
777	.....	7:00p	7:18p	.....	7:29p
766	6:55p	7:11p	7:29p	7:37p	.....
777	.....	7:22p	7:38p	.....	7:48p
766	7:17p	7:33p	7:49p	7:57p	.....
777	.....	7:44p	8:00p	.....	8:10p
766	7:40p	7:55p	8:11p	8:19p	.....
777	.....	8:06p	8:22p	.....	8:32p
766	8:02p	8:17p	8:33p	8:41p	.....
777	.....	8:28p	8:44p	.....	8:53p
766	8:24p	8:39p	8:55p	9:03p	.....
777	.....	8:50p	9:06p	.....	9:15p
766	8:46p	9:01p	9:17p	9:25p	.....
777	.....	9:12p	9:27p	.....	9:36p
766	9:08p	9:23p	9:38p	9:46p	.....

TECHNICAL PROGRAM at a - Glance

Day/Time2		Time	Santa Ana A B	Lobo A	Lobo B	Total
Monday 39 PAPERS	AM 1	**08:30 – 10:30**	**WELCOME SESSION (Ball Room C)**			
	AM2	11:00 – 12:20	TC01-1 (3P)	TC07 -1 (4P)	TC02 -1 (4P)	11
	PM 1	14:00 – 15:20	TC01-2 (4P)	TC07 -2 (4P)	TC02 -2 (2P)	10
	PM 2	15:50 - ***17:50***	TC01-3 (6P)	TC07 -3 (6P)	SS01 -1 (6P)	18
Tuesday 38 PAPERS	AM 1	09:10 – 10:30	TC01-4 (3P)	TC05 -1 (4P)	SS02 -1 (4P)	11
	AM 2	11:00 – 12:20	TC09 – 1 (3P)	TC05 -2 (2P)	SS02 -2 (4P)	9
	PM 1	14:00 – 15:20	**POSTER SESSION - 1 (7P) (3rd Floor Atrium)**			7
	PM 2	15:50 – 17:30	TC09 -2 (4P)	TC07 -4 (5P)	SS02 -3 (2P)	11
W***ednesday*** 21 PAPERS	AM 1	08:30 to 10:30	**Plenary Session (Lobo AB)**			4
	AM 2	**11:00 – 12:30**	**Plenary Session (Lobo AB)**			3
	PM 1	14:00 – 15:20	**POSTER SESSION - 2 (8P) (3rd Floor Atrium)**			8
	PM 2	15:50 – 17:10	TC04 -1 (4P)	TC12 - 1 (2P)		6
Thursday 40 PAPERS	AM 1	09:10 – 10:30	TC04 -2 (4P)	TC06 – 1 (4P)	TC03 -1 (3P)	11
	AM 2	11:00 – 12:20	TC04 -3 (3P)	TC06 -2 (4P)	TC03 -2 (4P)	11
	PM 1	14:00 – 15:20	TC04 -4 (4P)	TC06 -3 (2P)	TC03 -3 (3P)	9
	PM 2	15:50 – ***17:30***	TC04 -5 (4P)	TC08 -1 (5P)		9
138			**TOTAL**			**138**

All breaks will be at the 3rd Floor Atrium

AM Coffee Break - 10:30-11:00 ***On all 4 days*** PM Coffee Break - 15:20 – 15:50 ***On all 4 days***

MONDAY, 28 JULY 2014

Time	ID #	AM 1 — Welcome Session	Ballroom C
8:30 –8:45		**Welcome address, Symposium Chair** *Edl Schamiloglu,* University of New Mexico	
8:45 –9:00		**Welcome address, Vice Provost for Research** *Dr. Michael J. Dougher,* University of New Mexico	
9:00 –9:15		**Welcome address, Technical Program Committee** *Dave Giri, Pro-Tech*	
9:15 –9:20		**Appreciation, Local Organizing Committee** *John Gaudet,* University of New Mexico	
9:20 – 09:25		**Introduction of Keynote Speaker** *William Radasky,* Metatech Corporation	
9:25 – 10:30		**Keynote Speech, EMP Commission Activities** *William Graham* (Retired), Chair- EMP Commission, USA	
10:30 – 11:00		**Coffee Break**	

TC01-1 Narrowband HPM Sources	ID #	Sources, Antennas and Facilities Chaired by: W. Prather, P. Mardahl	Santa Ana AB
11:00-11:20	**84**	**Project of compact plasma maser with continuous spectrum within 2 octaves** *Svetlana Ernyleva, Oleg Loza, Irina Bogdankevich*	
11:20-11:40	**113**	**Analytical Expressions for Characteristics of the Power Magnetron Injection Gun on Base of a Scale Method WITHDRAWN** *Sergiy Cherenshchykov*	
11:40-Noon	**8**	**Design and simulation of Relativistic magnetron for LIA-400. WITHDRAWN** *Ankur Patel, Archana Sharma, Ayush Saxena, K.C.Mittal*	

TC07-1 System Level Modeling	ID #	Numerical Models and Modeling Chaired by: J-P. Parmantier, Tae-Heon Jang	Lobo A
11:00-11:20	**4**	**Power-grid Overload's and Short-circuit's Protections Scattering parameters Measurement** *Chaouki Kasmi, Damien Coiffard, Muriel Darces, Marc Hélier*	
11:20-11:40	**137**	**High-Power Microwave Weapons' Effects and Failure Analysis Using Sneak Circuit Modeling** *Andrew Drozd, Irina Kasperovich*	
11:40-Noon	**99**	**Rigorous EMI/EMC Analysis of Complex Electronic Systems with External High-Power Microwave Pulses** *Zhen Peng, Yang Shao*	

TC02-1 Coupling to Structures and Materials	ID #	Applications of Coupling to Structures and Cables Chaired by: M. Bäckström, L. Fichte	Lobo B
11:00-11:20	**20**	**Measurement of the Stochastic Electromagnetic Field Coupling into a Double Wire Transmission Line** *Mathias Magdowski, Ralf Vick*	
11:20-11:40	**48**	**JEMS-FDTD and Its Applications in Electromagnetic Scattering and Coupling by Large Complex Object** *Hanyu Li, Haijiang Zhou, Xianfeng Bao*	
11:40-Noon	**138**	**Analysis of Coupling Effect for Multi-Layered Composite Material with Periodic Structure** *Se-Young Hyun, Jin-Kyoung Du, Chilsung Jung, Eung-Jo Kim, Jong-Gwan Yook*	
Noon-12:20	**140**	**Coupling Effects According to PCB Orientations** *Jin-Kyoung Du, Se-Young Hyun, Jong-Gwan Yook, Jongwon Lee, Jin Soo Choi*	

TC01-2 HPM Applications	ID #	Sources, Antennas and Facilities Chaired by: D. Giri, W. Prather	Santa Ana AB
14:00-14:20	**35**	**Ultimate Broadband High-Power Microwaves** *Andrew S. Podgorski*	
14:20-14:40	**79**	**Metal Plate Lenses for a High-Power Microwave Zoom Antenna** *Julie Lawrance, Christos Christodoulou*	
14:40-15:00	**124**	**Creating Double Negative Index Metallic Materials for HPM Applications** *Hamide Seidfaraji, George Atmatzakis, Mehmet Fatih Su, Christos Christodoulou*	
15:00-15:20	**126**	**Miniaturization of TEM Horn Antenna Using Spherical Modes Analysis** *Mohamed Elmansouri, Dejan Filipovic*	

TC07-2 Numerical Modeling	ID #	Numerical Models and Modeling Chaired by: J-P. Parmantier, S Tkachenko	Lobo A
14:00-14:20	**34**	**Chaos Control in Transmission Lines Coupled to Nonlinear Circuits** *Ioana Triandaf*	
14:20-14:40	**53**	**Comparison of the two analytic approaches for the Prediction of EMP Coupling to Multi-conductor Transmission Lines** *Jun Guo, Yan-zhao Xie*	
14:40-15:00	**114**	**EM Coupling to a Transmission Line Located Symmetrically inside a Cylinder** *Ronald Rambousky, Sergey Tkachenko, Juergen Nitsch*	
15:00-15:20	**116**	**Application of Singularity Expansion Method (SEM) to Long Transmission Lines** *Sergey Tkachenko, Felix Middelstaedt, Juergen Nitsch, Ralf Vick, Gaspard Lugrin, Farhad Rachidi*	

TC02-2 Test Methods and Facilities	ID #	Applications of Coupling to Structures and Cables Chaired by: L. Fichte, M. Bäckström	Lobo B
14:00-14:20	**13**	**Radiated Power Calculations for Open TEM-Waveguides** *Ronald Rambousky, Heyno Garbe*	
14:20-14:40	**121**	**Nonlinear Time Reversal in a Semi-Reverberant Complex Enclosure** *Sun Hong, Victor Mendez, Walter Wall, Tim Andreadis, Trystan Koch, Steven Anlage*	

TC01-3 UWB Sources	ID #	Sources, Antennas and Facilities Chaired by: D. Brumit, W. Prather	Santa Ana AB
15:50-16:10	**103**	**Solution of the Fields in a Coaxial Switched Oscillator** *Felix Vega, Farhad Rachidi*	
16:10-16:30	**104**	**Numerical Calculation of the Fields on the Aperture Plane of an Impulse Radiation Antenna** *Felix Vega, Nicolas Mora, Farhad Rachidi*	
16:30-16:50	**149**	**Experimental Studies of a Relativistic Backward Wave Oscillator with Gaussian Radiation** *Ahmed Elfrgani, Sarita Prasad, Mikhail Fuks, Edl Schamiloglu*	
16:50-17:10	**151**	**Sectional Cylindrical Waveguide with Longitudinally Distributed Slots** *Ali Harmouch, Hassan Haddad*	
17:10-17:30	**128**	**Analysis of 20 Stages, 64 J, 300 kV, Marx Generator UWB System** *Sachin Umbarkar, Mrunal Parekh, Archana Sharama, Harivitthal Mangalvedekar*	
17:30-17:50	**44**	**Analytical and Experimental Studies on a Fast UWB Pulse Generating System** *Vijay Bhosale, Joy Thomas, Devendra Chandra Pande, Sachin Umbarkar*	

TC07-3 Component Modeling	ID #	Numerical Models and Modeling Chaired by: S. Tkachenko, J-P. Parmantier	Lobo A
15:50-16:10	**55**	**Statistical model for coupling of EM energy through apertures** *Thomas Antonsen, Gabriele Gradoni, Steven Anlage, Edward Ott*	
16:10-16:30	**61**	**Transmission Cross Section for Apertures and Arrays Calculated Using Time-Domain Simulations** *Ronny Gunnarsson, Mats Bäckström*	
16:30-16:50	**95**	**Numerical Validation of the Absorption of Ferrite Material in NEMP applications** *Marc Sallin, Bertrand Daout, Felix Vega*	
16:50-17:10	**105**	**An Array of Metamaterial-Inspired Antennas for High-Power Applications** *Eric Ramon, J. Scott Tyo, Richard Ziolkowski, Francesca Vipiana*	
16:50-17:10	**106**	**Metamaterial-Inspired Magnetic EZ Antenna for High-Power Microwave Applications** *Eric Ramon, J. Scott Tyo, Richard Ziolkowski, Michael Skipper, Michael Abdalla*	
17:10-17:30	**154**	**Tracking Electromagnetic Interference in an Urban Environment on the World Wide Web** *Osmen Cerezci, A. Yasin Citkaya*	

SS01-1 General Methods and New Aspects	ID #	Statistical Tools in HPEM Chaired by: C. Kasmi, R. Gardner	Lobo B
15:50-16:10	**15**	**Electromagnetic Security: Risks Management Improvement using Statistics** *Robert Gardner, Chaouki Kasmi, Muriel Darces, Marc Helier*	
16:10-16:30	**64**	**Statistical Mechanics and Chaos Applied to Electromagnetic Compatibility** *Ira Kohlberg, Robert Gardner*	
16:30-16:50	**65**	**Interpreting Radar Signal-to-Clutter-and-Noise-Ratio as a Stochastic Process** *Ira Kohlberg, Robert McMillan*	
16:50-17:10	**67**	**Calculus of Low-Probability-High Consequence Events** *Edward Toton, Ira Kohlberg*	
17:10-17:30	**115**	**Probabilistic Modelling and an EM-Compatibility Calculus** *Bas Michielsen, Jean-Philippe Parmantier*	
17:30-17:50	**148**	**A Simulation Tool for the Stochastic Electromagnetic Field Coupling to a Uniform Transmission Line** *Mathias Magdowski*	

TUESDAY, 29 JULY 2014

TC01-4 EMC/EMP	ID #	Sources, Antennas and Facilities Chaired by: W. Prather, D. Giri	Santa Ana AB
9:10-9:30	**7**	**Design Aspects of a RS 105 Facility Using a Conical Transmission Line** *Dave Giri, Tae Heon Jang*	
9:30-9:50	**52**	**A Compact HEMP Test System based on Movable Electrode** *Ke-jie LI, Yan-zhao Xie*	
9:50-10:10	**73**	**Increasing Peak-Power Field Generation Efficiency in Reverberation Chambers** *Henri Vallon, Guillaume Defrance, Florian Monsef, Anne-Sophie Chauchat, Andrea Cozza*	

TC05-1 HPEM Testing	ID #	System-level Protection and Testing Chaired by: A. Kaelin, T. Jang	Lobo A
9:10-9:30	**25**	**IEMI Immunity Test Methods for Equipment and Systems** *Anthony Wraight, Mats Bäckström, Richard Hoad, William Radasky, Frank Sabath*	
9:30-9:50	**51**	**HPM-Testing of COTS Network Equipment** *Markus Nyffeler, Armin Kaelin*	
9:50-10:10	**109**	**First Thoughts on a Standard for Future HPEM Immunity Tests** *Fichte Lars Ole, Stiemer Marcus, Potthast Stefan, Sabath Frank, Adami Christian*	
10:10-10:30		**A Statistical Approach to Analyze the Risk of HPEM Attacks on Electronic Systems** *Torsten Teichert*	

SS02-1 Threats and Testing	ID #	HPEM- Impacts/Protection on Critical Infrastructure in Europe Chaired by: R. Hoad, O. Harry Arnesen	Lobo B
9:10-9:30	**39**	**HPEM Tests of Communication Devices** *Christian Adami, Michael Joester, Michael Suhrke, Hans-Joachim Taenzer*	
9:30-9:50	**94**	**Protection of Critical Infrastructures against High-Power Microwave Threats - HIPOW** *Odd Harry Arnesen*	
9:50-10:10	**123**	**Jamming Signal Immunity Tests on GSM-R Communications Compared to EMC Standards** *Véronique Beauvois, Michele Fontana, Virginie Deniau, Flavio Canavero*	
10:10-10:30	**38**	**The threat of Intentional Electromagnetic Interference (IEMI) against modern critical infrastructures: Awareness and Protection** *Stylianos Panagiotou, Stelios Thomopoulos*	

TC09-1 Wideband Antennas	ID #	Antenna Design, Radiation and Propagation Chaired by: D. Giri, E. Farr	Santa Ana AB
11:00-11:20	**107**	**Numerical synthesis and realization of broadband loaded monopole antennae** *Kees de Haan, Alwin Brettschneider, Peter Zwamborn*	
11:20-11:40	**36**	**Design of an Ultra Wide Band Dipole Antenna for High-Power Electromagnetics** *Taehyun Lim, Jongwon Lee*	
11:40-Noon	**3**	**Design Aspects of Korean Half Impulse Radiating Antenna** *Tae Heon Jang, Dave Giri*	

TC05-2 HPEM Testing	ID #	System-level Protection and Testing Chaired by: T. Jang, A. Kaelin	Lobo A
11:00-11:20	**54**	**Design Of High Current HEMP Filters For Reliability** *William Turner, David Rimmer*	
11:20-11:40	**147**	**US Navy EMP Program WITHDRAWN** *Alexander Solomonik*	

SS02-2 Coupling and Protection	ID #	HPEM- Impacts/Protection on Critical Infrastructure in Europe Chaired by: V.Deniau, B.Petit	Lobo B
11:00-11:20	**77**	**A Review of the Current Status of IEMI Standards for the HIPOW Project** *Albert Fernandes, Colin Harper, Richard Hoad, Barney Petit*	
11:20-11:40	**92**	**Evaluation of RF Transfer Functions Between the Outside and the Inside of Building Rooms** *Isabelle Junqua, Jean-Philippe Parmantier, Wilfrid Quenum, François Issac*	
11:40-Noon	**101**	**Transmission and Reflection of Microwave Radiation from Novel Window Panes** *Paulius Ragulis, Žilvinas Kancleris, Rimantas Simniškis*	
Noon-12:20	**131**	**Attenuation of Building used for HPM Testing - Variation with frequency, polarization, position, and window configuration** *Ernst Krogager, Jostein Godø*	

	ID #	POSTER SESSION 1 Chaired by: R. Hoffman, S. Prasad	3RD FLOOR ATRIUM
14:00-15:20	**16**	**Shielding Effectiveness research due to antenna polarization characteristic** *Ho-Jae Kang, Chang-Su Huh, Woo-Chul Park, Sun-Mook Hwang*	
14:00-15:20	**17**	**Equipment and Methodology for Destructive High-Power Microwave Testing** *Tomas Hurtig, Mose Akyuz, Mattias Elfsberg, Anders Larsson, Sten E. Nyholm*	
14:00-15:20	**30**	**High-Power Microwave Pulse Measurements WITHDRAWN** *Klimov Aleksei, Vykhodtsev Pavel, Konev Vladimir, Rostov Vladislav, Eugene Totmeninov*	
14:00-15:20	**46**	**Analysis of electromagnetic SE (shielding effectiveness) by the change in receiving and transmitting antenna position** *Jeong-Ju Bang, Chang-Su Huh, Woo-Chul Park, Sun-Mook Hwang*	
14:00-15:20	**49**	**Two methods for D-dot sensor** *Chao Yang, Cui Meng, Edl Schamiloglu*	
14:00-15:20	**96**	**Instruction Dependent Upset of a Microcontroller** *David French, Tim Clarke, Kyle Gordon*	
14:00-15:20	**98**	**Statistical Distribution of the Induced Voltage in Two Coupled Wave-chaotic Cavities** *Xin Li, Cui Meng, Yi Nong Liu, Edl Schamiloglu, Sameer Hemmaday*	

TC09-2 Theory and Applications	ID #	Antenna Design, Radiation and Propagation Chaired by: E. Farr, D. Giri	Santa Ana AB
15:50-16:10	**22**	**The Power Wave Theory of Antennas and Some of its Implications** *Everett Farr*	
16:10-16:30	**69**	**Dual Conical Electromagnetic Lens between a Marx Generator and a Helical Antenna** *Dave Giri, Ian Smith*	
16:30-16:50	**71**	**Absorption by Non-Radiating Systems** *Joerg Fricke*	
16:50-17:10	**132**	**Miniaturized Slotted Waveguide Antennas with Periodic Structures for HPM Applications** *Xuyuan Pan, Mohammed Al-Husseini, Christos Christodoulou*	

TC07-4 Source and Environment Modeling	ID #	Numerical Models and Modeling Chaired by: S.Tkachenko, Hellier	Lobo A
15:50-16:10	**21**	**A new configuration of axial vircator with reflectors to maximize the power efficiency** *Stephanie Champeaux, Philippe Gouard, Richard Cousin, Jean Larour*	
16:10-16:30	**85**	**Remedying HPM pulse shortening in plasma relativistic microwave oscillators** *Svetlana Ernyleva, Oleg Loza, Vladimir Tarakanov*	
16:30-16:50	**112**	**Discharge Model of a Spark Gap Peaking Switch** *Mrunal Parekh, Sachin Umbarkar, H.A. Mangalvedekar*	
16:50-17:10	**127**	**Ocean-Land Interfaces** *James Gilbert*	
17:10-17:30	**150**	**Electromagnetic Simulation on Emerging Hardware Architecture** *Peter Stoltz, Eric Hallman, Kristian Beckwith, Dmitry Gorelov, Chase Boulware*	

SS02-3 Detection of IEMI	ID #	HPEM- Impacts/Protection on Critical Infrastructure in Europe Chaired by: I. Junqua, J. Dawson	Lobo B
15:50-16:10	**37**	**Detection of railway signalling jamming signals using the EVM method** *Souheir MILI, Virginie Deniau, David Sodoyer, Marc Heddebaut Suhrke Gerd*	
16:10-16:30	**93**	**Microwave Attack Detecting System** *Rimantas Simniskis, Mindaugas Dagys, Zilvinas Kancleris, Paulius Ragulis*	

WEDNESDAY, 30 JULY 2014

	ID #	PLENARY SESSION Lobo AB Chaired by: J. Gaudet, M. Bäckström
8:30-9:00	**78**	**Overview of the French Capabilities in the Field of High-Power Microwaves** *Dominique Serafin*
9:00-9:30	**146**	**Swept CW Testing of Large Systems** *William Prather, Jory Cafferky, Jay Anderson*
9:30-10:00	**45**	**EMC Aspects of the Square Kilometre Array in South Africa** *Howard Reader*
10:00-10:30	**110**	**History of the EMP Note Series** *Robert Gardner, Leigh Gardner*
10:30-11:00		**Coffee Break**
11:00-11:30	**18**	**Trends in Narrowband High-Power Microwaves** *Edl Schamiloglu*
11:30-Noon	**28**	**Measurement of Lightning Currents at the Säntis Tower in Switzerland** *Farhad Rachidi, Marcos Rubinstein, Mario Paolone, Davide Pavanello*
Noon-12:30	**88**	**Development of Electromagnetic Susceptibility Testing of Complex Systems at the Naval Surface Warfare Center, Dahlgren Division** *David Stoudt*

	ID #	POSTER SESSION 2 Chaired by: R. Hoffman, S. Prasad	3RD FLOOR ATRIUM
14:00-15:20	**19**	**Design of a Frequency Tunable 75 GHz Resonant TWT Using Serpentine Waveguides** *Mikhail Fuks, Edl Schamiloglu*	
14:00-15:20	**32**	**Compact High Voltage Pulse Generator Based on Magnetic-Core Tesla Transformer** *Jin-Ho Shin, Dong-Gi Youn, Yeong-Kyung Jung*	
14:00-15:20	**47**	**A High-Power Wideband Radiator with a Paraboloidal Reflector Illuminated by an Integrated Antenna-Source** *Jiheon Ryu, Jongwon Lee, Jeonghyun Kuk, Jin Soo Choi*	
14:00-15:20	**100**	**Pulsed Radio Frequencies Using a Photoconductive Semiconductor Switch** *Timothy Wolfe, John Cetnar, Eric Moore, Roger Burchett, Andrew Terzuoli*	
14:00-15:20	**133**	**Experimental Plan For 70% Efficient Relativistic Magnetron With Diffraction Output (MDO)** *Chris Leach, Sarita Prasad, Mikhail Fuks, Jerald Buchenauer, Jeremy McConaha, Edl Schamiloglu*	
14:00-15:20	**141**	**Parametric Characterization of Electromagnetic Energy Production From Over-Voltaged Spark Gaps** *Artem Kuskov, Sydney Horne, Ahmed Elshafiey, Sal Portillo*	
14:00-15:20	**144**	**Effect of Magnetic Field Distribution on MDO Operation** *Jeremy McConaha, Chris Leach, Sarita Prasad, Edl Schamiloglu*	
14:00-15:20	**145**	**Prospects of Split Ring Resonators for the Generation of High-Power Microwaves** *Sarita Prasad, Alan Lynn, Kost' Ilyenko, Mikhail Fuks, Edl Schamiloglu*	

TC04-1 Overview of IEMI and HEMP	ID #	IEMI Threats, Effects and Protection Chaired by: W.Radasky, R. Hoad	Santa Ana AB
15:50-16:10	**63**	**A Comparison of Intentional EMI, Cyber and Physical Threats and Protection** *Richard Hoad, Colin Harper, Barney Petit, Albert Fernandes*	
16:10-16:30	**76**	**An Overview of Some Site Specific IEMI Risk Assessment Tools** *Barney Petit, Richard Hoad, Albert Fernandes*	
16:30-16:50	**125**	**EMP Protection and Testing of HF Systems** *Walter Scott, Michael Rooney*	
16:50-17:10	**143**	**High-Altitude Electromagnetic Pulse – The Threat to the Electric Power Grid Updated** *William Radasky*	

TC12-1	ID #	Landmine and IED Detection and Neutralization Chaired by: M. Lambrecht, A. Greenwood	Lobo A
15:50-16:10	**142**	**Electromagnetic Modeling of Hot-Wire Detonators** *Michael Lambrecht, Edl Schamiloglu*	

THURSDAY, 31 JULY 2014

TC04-2 Coupling	ID #	IEMI Threats, Effects and Protection Chaired by: R. Hoad, W. Radasky	Santa Ana AB
9:10-9:30	**23**	**Response of an Electrical and Communication Raceway to HPEM Transient Field Illumination** *Nicolas Mora, Carlos Romero, Felix Vega, Farhad Rachidi, Pierre Bertholet, Markus Nyffeler*	
9:30-9:50	**24**	**Analysis of the Propagation of High Frequency Disturbances along Low-Voltage Test Raceway** *Nicolas Mora, Chaouki Kasmi, Farhad Rachidi, Muriel Darces, Marc Hélier, Marcos Rubinstein*	
9:50-10:10	**27**	**Impulse Response and IEMI Susceptibility of Commensurate-Line Filters** *Mirjana Stojilović, Marcos Rubinstein, Antonije Djordjević*	
10:10-10:30	**72**	**Double-Pulse Technique for Defending from Hostile Systems** *Dave Giri, Tai Wu*	

TC06-1 Observation, Testing and Deleterious Effects	ID #	Lightning EM Effects Chaired by: M. Rubinstein, A. Tatematsu	Lobo A
9:10-9:30	**139**	**Lightning Accidents in Colombia. Lightning threats in the Colombian army** *Francisco Roman, Felix Vega*	
9:30-9:50	**14**	**Fiber-Optic Sensor: A New Tool for Lightning Current Measurement** *Truong Nguyen, Jay Ely, George Szatkowski*	
9:50-10:10	**41**	**Influence of LLS Detection Efficiency on the Measured Distribution of Interstroke Intervals** *Mohammad Azadifar, Mirjana Stojilović, Marcos Rubinstein, Farhad Rachidi*	
10:10-10:30	**11**	**Russian National Primary Standard Facility for realization of lightning impulse current unit** *Konstantin Yu. Sakharov, Vladimir A. Turkin, Oleg V. Mikheev, Alexander V. Sukhov*	

TC03-1 Measurement Techniques	ID #	Measurement Techniques Chaired by: R. Rambousky, A. Wraight	Lobo B
9:10-9:30	**26**	**Microstrip transducer for UWB EMP characterization** *Konstantin Yu. Sakharov, Vladimir A. Turkin, Oleg V. Mikheev, Mikhail I. Dobrotvorsky, Alexander V. Sukhov*	
9:30-9:50	**62**	**Measuring DC Voltage using Acoustic Wave Propagation in LiNbO3** *Nishant Patel, Stefan Cular, Darren Branch, Edl Schamiloglu*	
9:50-10:10	**80**	**Evaluation of some new Balun devices** *Hugh Pohle*	

TC04-3 Effects	ID #	IEMI Threats, Effects and Protection Chaired by: W. Radasky, R. Hoad	Santa Ana AB
11:00-11:20	**6**	**IEMI AC Harmonic Vulnerability of Small External Power Supplies** *Edward Savage, William Radasky, Michael Madrid*	
11:20-11:40	**57**	**Influences of Electrical Pulse Disturbances on Digital Device Operation** *Yury Parfenov, William Radasky, Boris Titov, Leonid Zdoukhov*	
11:40-Noon	**136**	**Evaluation of HPEM Effects of Electronic Equipments in Actual Environments** *Jin Soo Choi, Jongwon Lee, Jiheon Ryu, Cheonho Kim, Seung Ho Han, Sung Hoon Hong*	

TC06-2 Interaction with Power Systems and Protection	ID #	Lightning EM Effects Chaired by: A. Piantini, F. Rachidi	Lobo A
11:00-11:20	**5**	**Effect of Corona on Lightning-Induced Voltages** *Huu Thang Tran, Yoshihiro Baba, Naoto Nagaoka, Akihiro Ametani, Naoki Itamoto, Vladimir A. Rakov*	
11:20-11:40	**12**	**Lightning Characteristics Analysis of Grounding Devices by Modified Partial Element Equivalent Circuit Method** *Jinliang He, Jinpeng Wu, Bo Zhang*	
11:40-Noon	**43**	**Lightning Overvoltages on Shield Wire Lines** *Alexandre Piantini, Miltom Shigihara, José Ramos*	
Noon-12:20	**81**	**FDTD Calculation of LEMP Inside a Reinforced Concrete Building** *Akiyoshi Tatematsu, Farhad Rachidi, Marcos Rubinstein*	

TC03-2 Shielding Measurements	ID #	Measurement Techniques Chaired by: A. Wraight, R. Rambousky	Lobo B
11:00-11:20	**68**	**Application of UWB technique for wall shielding measurements** *Frank Sonnemann, Robert Stark*	
11:20-11:40	**70**	**Measurements of Isotropic Absorption Cross Sections of Lossy Structures** *Bengt Vallhagen, Tony Nilsson*	
11:40-Noon	**90**	**EM Propagation Measurements and Analysis** *Rik Naus, Roel Wymenga, Peter Zwamborn*	
Noon-12:20	**130**	**A Technique for Evaluating Electrical Insulation in High Frequency/High Voltage Applications** *Clayborne Jr. Taylor, Clayborne Taylor*	

TC04-4 Protection	ID #	IEMI Threats, Effects and Protection Chaired by: W. Radasky, R. Hoad	Santa Ana AB
14:00-14:20	**83**	**Design and Realization of a High-Voltage Adapter for the Testing of Surge Protective Devices against Intentional Electromagnetic Interferences** *Pierre Bertholet, Armin Kaehlin, Gaspard Lugrin, Nicolas Mora, Markus Nyffeler, Farhad Rachidi*	
14:20-14:40	**89**	**Band Pass Filter Limiting Front-Door Coupling of HPEM Threats to Protect Ku-band Satellite Communication System** *Werner A. Arriola, Tae Heon Jang, Ihn Seok Kim*	
14:40-15:00	**97**	**Development of a HEMP and IEMI Protection and Testing Guide using IEC SC 77C** *William Radasky*	
15:00-15-20	**122**	**Characterization of Building Used for HPM Testing** *Jostein Godø, Odd Harry Arnesen*	

TC06-3 Interaction with Aircraft	ID #	Lightning EM Effects Chaired by: J-P. Parmantier	Lobo A
14:00-14:20	**82**	**Simulation of Indirect Effects of Lightning on Aircraft Engine** *Paula Aguilera, Cyril Lair, Bastiaan Michielsen, François Issac, Marc Hélier, Muriel Darces*	
14:20-14:40	**118**	**The ARROW Project - Modelling of Lightning Indirect Effects on Composite Aircraft equipped with Current Return Networks** *Alessandro Mori, Mauro Bandinelli, Gianmarco Sammarone, Jean-Philippe Parmantier, Solange Bertuol, Isabelle Junqua, Francesca Vipiana, Mario Echeverri Bautista, Giulio Antonini, Daniele Romano, Jerome Genoulaz, Thibaud Lebreton*	

TC03-3 HPEM Field Measurements	ID #	Measurement Techniques Chaired by: R. Rambousky, A. Wraight	Lobo B
14:00-14:20	**9**	**CW Measurements of Shielded Systems: Waveform Averaging and EMP Extrapolation** *William Prather, Jory Cafferky*	
14:20-14:40	**102**	**Measurement System of Electric Field Strength in Free Space with Flat Frequency Response** *Paulius Ragulis, Žilvinas Kancleris, Rimantas Simniškis, Mindaugas Dagys*	
14:40-15:00	**120**	**Dielectric Probe for Fully Vectorial Analysis of Electric Field** *Gwenaël Gaborit, Pierre Jarrige, Frédéric Lecoche, Jean Dahdah, Lionel Duvillaret*	

TC04-5 Detection	ID #	IEMI Threats, Effects and Protection Chaired by: R. Hoad, W. Radasky	Santa Ana AB
15:50-16:10	**10**	**A Self-monitored Information System for High-Power Electromagnetic Attacks Detection** *Chaouki Kasmi, Jose Lopes Esteves, Mathieu Renard*	
16:10-16:30	**40**	**HPEM Tests of Security Systems** *Christian Adami, Michael Joester, Michael Suhrke, Hans-Joachim Taenzer*	
16:30-16:50	**42**	**A Multi-Channel HW Prototype for IEMI Diagnosis** *David Recordon, Mirjana Stojilović, Marcos Rubinstein, Loubna Rouiller, Werner Hirschi*	
16:50-17:10	**152**	**Modeling and Experiments of High-Power Radio Frequency Effects on Printed Circuit Boards and their Embedded Chip Elements** *M. Rivera, R. Schlegel, Xu Gao, C. Sui, K. Sharma, D. Beetner, J. Yukura, L. Andhivahis, S. Hemmady*	

TC08-1	ID #	Bio-effects and Medical Applications of EM Fields Chaired by: R. Joshi, D. Filipovic	Lobo A
15:50-16:10	**56**	**Subnanosecond Pulses for Electrostimulation** *Shu Xiao, Andrei Pakhomov, Dongkoo Kang, Karl Schoenbach*	
16:10-16:30	**91**	**Medical Uses of Electromagnetic Energy** *Dave Giri, Jayanti Venkataraman*	
16:30-16:50	**119**	**An Incubator Combined with TEM-cell for Cellular Electromagnetic Effects Study** *Xiao-Yun LU, Ke-jie LI, Yan-zhao Xie*	
16:50-17:10	**155**	**Study of Electromagnetic Risk Analysis in Hospitals** *Osmen Cerezci, A. Yasin Citkaya*	
17:10-17:30	**135**	**Information Millimeter-Wave System for Biomedical Applications WITHDRAWN** *Yaroslav Savenko, Evgeniy Nelin, Fedir Repa*	

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High-Power Electromagnetics & Related Topics

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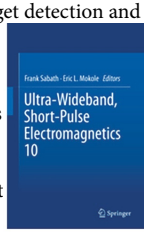

UWB radar systems are also being used for mine clearing, oil pipeline inspections, archeology, geology, and electronic effects testing. Like previous books in this series, Ultra-Wideband Short-Pulse Electromagnetics 10 serves as an essential reference for scientists and engineers working in these applications areas.

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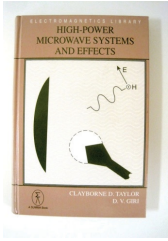

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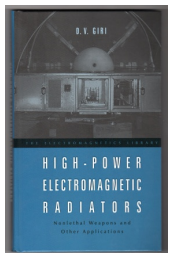
by D. V. Giri



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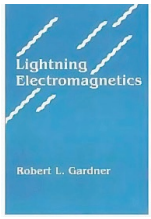
By Robert Gardner



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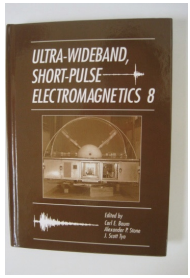

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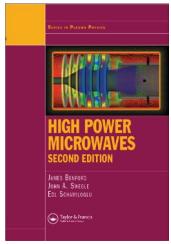

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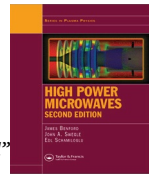

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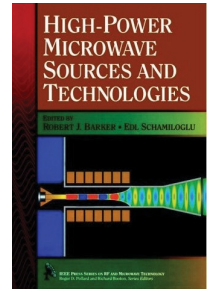

by R.J. Barker and E. Schamiloglu

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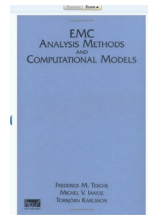

This book describes and illustrates various modeling techniques which are applicable to the area of EMC and includes material previously available only in international reports or other hard-to-obtain references. Electromagnetic topology, lumped-parameter circuit models, the radiation process, scalar diffraction theory for apertures, transmission line modeling, and models for shielding are among the topics discussed.

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On behalf of the SUMMA Foundation, I am very happy to welcome you to AMEREM 2014. The SUMMA Foundation, created by by Dr. Carl E. Baum, has been the proud sponsor of this Symposium since 1978.

The name of this conference has morphed from NEM to AMEREM and EUROEM and soon ASIAEM which will take place in Jeju Island, Republic of Korea (more commonly known as South Korea) in 2015. The next EUROEM is already planned for London, UK in 2016. Carl Baum, who was a mentor to many around the world, almost single-handedly ran SUMMA, with the help of some close associates. He used to provide the necessary financial support to SUMMA.

The SUMMA Foundation is now run by a Board of Directors consisting of Edl Schamiloglu, Dave Giri, William Prather, Alex Stone and Spencer Baum (a nephew of Carl Baum). We would like to continue to sponsor many activities such as as sponsoring scientific conferences, awarding graduate scholarships, recognizing HPEM Fellows, Best Paper Awards etc.

Dr. Carl E. Baum

An important activity of SUMMA is to publish the NOTE Series. This NOTE Series was originally started by Dr. Ralph Partridge of Los Alamos National laboratories, who authored Sensor and Simulation Note Number 1, titled "EMP Test Facility" dated 25 February 1964. It was quickly taken over by Carl who did an admirable job up until his untimely demise in 2010! The Notes reside at: www.ece.unm.edu/summa/notes and this site is well-administered by Chuck Reuben who was Carl's assistant during Carl's tenure at The University of New Mexico from 2005-2010.

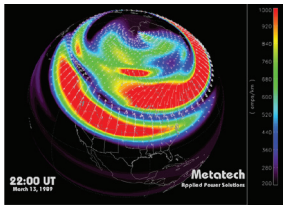
I was privileged to serve as the Chief Editor for the three year period of 2011-2013. Dr. Robert Gardner is now the Chief Editor. Please welcome Bob Gardner and provide him with your cooperation in ensuring the continued success of the NOTE Series, which we all have come to admire and benefit from.

We are confident that you will enjoy this Symposium and the unique aspects of its venue!

SUMMA FOUNDATION

Dr. D.V. Giri

Notes



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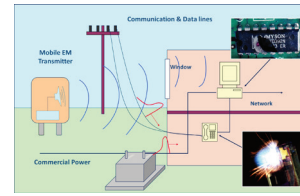

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- Susceptibility assessments and protection recommendtions for existing buildings and electronics to cover the threats of HEMP and IEMI.
- Consulting support for the design and construction of high-frequency EM shielded buildings (HEMP and IEMI) for the critical infrastructures.
- Evaluations of the susceptibility of regional and national high voltage power grids to severe geomagnetic storms.
- Research into the threat, impacts and protection of the U.S. power grid from HEMP, IEMI and severe geomagnetic storms. An executive summary and 6 reports may be found on the web at:

http://web.ornl.gov/sci/ees/etsd/pes/ferc_emp_gic.shtml

For further information concerning our capabilities and quotes for our services, please contact Dr. William A. Radasky at wradasky@aol.com or at +1-805-683-5681.

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