

Announcing a one week course

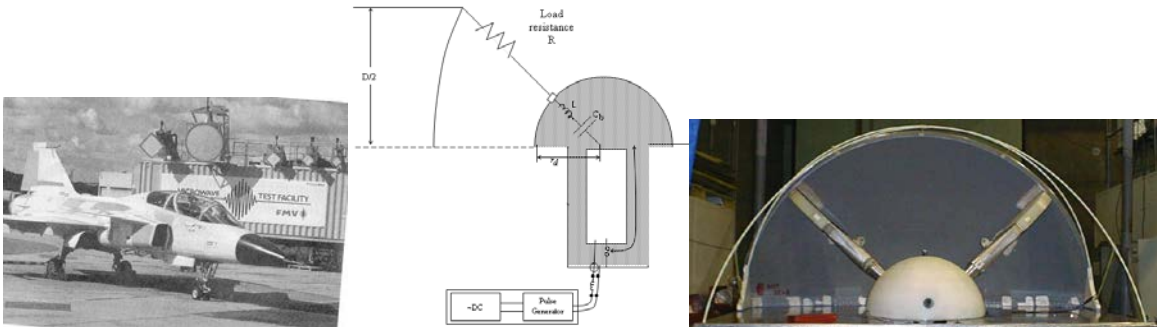
HIGH-POWER ELECTROMAGNETICS (HPEM)

ENVIRONMENTS, INTERACTIONS, EFFECTS, AND HARDENING



Short Course HPE 201-2013

Sponsored by the Education Committee of SUMMA Foundation



Narrow-band System Moderate-band System Hyperband System

May 26 (Sunday) – June 1 (Saturday), 2013

Lohas Park, Pyeongchang County, South Korea

Organized by

**Agency for Defense Development, South Korea &
The Korean Institute of Military and Science Technology**

INTRODUCTION

The EMP course, entitled EMP Interaction and Hardening (EMP 201) was first held at New Mexico Tech in Socorro New Mexico, USA in 1983. Since then, there have been 7 EMP-201 short courses. EMP short courses were well received for both their content and the way they were conducted.



www.lohaspark.net

Berlin Wall came down in 1989 - since then the world has changed, and with this the course material also needs to change. Emphasis on the environments from high-power microwaves (HPM) extending through high-power impulses (HPI). HPE-201 was offered for the first time in 2003 at New Mexico Tech, Socorro, New Mexico, USA. This was followed by similar courses in South Korea in 2005, France in 2007, Switzerland in 2009 and Germany in 2011. The course material has been constantly undated.

ORGANIZATION

The HPE 201-2013 is organized by **Agency for Defense Development, South Korea.**

The contact persons are:

Registration and secretary:
Organizers:

Ms. Nam Hyun Cho
Dr. Jin Soo Choi
Dr. Jaimin Lee

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OBJECTIVE

This course is designed to familiarize students who have a good background in electromagnetics with the fundamentals of HPE, including sources, interactions, effects and hardening.

PREREQUISITES

Those who want to **audit** the course must be active in the HPE community and/or other related areas (such as EMC, EMI, lightning, etc.) either technically or administratively. Each of these students will receive a Certificate of Attendance at the completion of the course.

Those who **participate** in a graduate seminar fashion during the course will each be awarded a Certificate of Achievement. They will participate in the exercises and will present short lectures. The latter students must have either

- (a) Successfully completed a graduate electromagnetics course, or
- (b) Published papers demonstrating knowledge of the subject.

We strongly urge students to have an active involvement as a **participating** student. Priority will be given to those selected as **participating**.

This intensive course might for example be interesting for the following persons:

- engineers directly active in these technical areas
- students, assistants and professors eager to enrich their know-how
- technical sales people working for the promotion of installations and equipment concerning this domain

FACULTY

Faculty team members are:

Dr. D. V. Giri, USA (will also serve as the Course Director)

Dr. Robert Gardner, USA

Dr. Jean-Philippe Parmantier, FRANCE

Dr. Richard Hoad, UNITED KINGDOM

Dr. Armin Kaelin, SWITZEERLAND.

Dr. Giri has over 35 years of work experience in the general field of electromagnetic theory and its applications in NEMP (Nuclear Electromagnetic Pulse), HPM (High-Power Microwaves), Lightning, and UWB (Ultra Wideband). A complete description of his academic training and work experience can be seen at website: www.dvgiri.com

He obtained the B.Sc., Mysore University, India, (1964), B.E., M.E., Indian Institute of Science, (1967) (1969), M.S., Ph.D., Harvard University, (1973) (1975), Certificate, Harvard Introduction to Business Program, (1981).

Since 1984, he is a self-employed consultant doing business as Pro-Tech, in Alamo, CA, performing R&D work for U.S. Government and Industry. He is also an Adjunct Professor in the Department of ECE, University of New Mexico, Albuquerque, NM. Dr. Giri has taught graduate and undergraduate courses in the Department of EECS, University of California, Berkeley campus. From May 1978 to September 1984, he was a staff scientist at LuTech, Inc., in Berkeley, CA. Prior to his association with LuTech, Inc., Dr. Giri was a Research Associate for the National Research Council at the Air Force Research Laboratory (AFRL), Kirtland AFB, New Mexico, where he conducted research in EMP and other aspects of electromagnetic theory. Dr. Giri is a **FELLOW of the Institute of Electrical and Electronic Engineers (IEEE)**, a Charter Member of the Electromagnetics Society, and Associate Member of Commission B, URSI and Vice-Chairman of Commission E, USNC. He has served on the editorial board of the Journal of Electromagnetics, published by the Electromagnetics Society. He has also served as an Associate Editor for the IEEE Transactions on Electromagnetic Compatibility. He was elected to the grade of **FELLOW** by the awards committee of Summa Foundation in 1994 for his contributions to EMP simulator design and HPM antenna design. He has coauthored a book titled **High-Power Microwave Systems and Effects** published by Taylor and Francis in 1994. He is a recipient of the IEEE Antennas and Propagation Society's **2006 John Kraus Antenna Award**. His second book titled **High-Power Electromagnetic Radiators: Nonlethal Weapons and Other Applications** has been published by Harvard University Press in 2004. He has also published over 100 papers, reports etc.

Biographies of other faculty members can be seen at the course website.

DAILY SCHEDULE

Sunday- 26 May 2013

- 14:00: Registration
- 17:00: Happy Hour
- 18:00: Evening will be devoted to the introduction of students, division into teams, familiarization with course outline and what is expected in the course.
- ~19:00: Dinner

Monday: 27 May 2013

- 07:00: Wake up - Breakfast
- 08:30: Lecture. The faculty will lecture on the fundamentals of HPE sources and environments and electromagnetic interaction.
- 10:30: Coffee Break
- 10:45: Lecture
- 11:45: Lunch Break
- 13:15: Lecture
- 15:15: Coffee Break
- 15:30: Lecture
- 17:30: Happy Hour
- 19:00: Dinner
- 20:00: Break and informal discussion and lecture.
Assignments for future classes will be given out.

Tuesday through Thursday (28 – 30 May 2013)

- 07:00: Wake up - Breakfast
- 08:30: Lecture. Faculty members will lecture about one hour at the start of each morning and afternoon session on selected aspects of HPE interaction and effects. Students will give mini-lectures on material assigned by the faculty.
- 10:30: Coffee Break
- 10:45: Lecture
- 11:45: Lunch Break
- 13:15: Lecture
- 15:15: Coffee Break
- 15:30: Lecture
- 17:30: Happy Hour
- 19:00: Dinner
- 20:00: Break. Preparation of the mini-lectures by the students.

Friday (31 May 2013)

- 07:00: Wake up - Breakfast
- 08:30: Lecture. Students will give mini-lectures on material assigned by the faculty. The lectures are devoted to general system problems including hardening.
- 10:30: Coffee Break
- 10:45: Lecture
- 11:45: Lunch Break
- 13:15: Lecture
- 15:15: Coffee Break
- 15:30: Lecture
- 19:00: Banquet

Saturday (1 June 2013) The course will be concluded after breakfast.

COURSE MATERIAL

Selected course material including books and articles will be provided. Example of books, texts and published papers:

- High Power Microwave Systems and Effects, C.D. Taylor and D. V. Giri, Taylor & Francis.
- High Power Microwave, 2nd Ed (Narrowband sources), Benford, Swegle & Shamiloglu, Artech House
- EMP Interaction: Principles Techniques and Reference Data, K. S. H. Lee (ed), Taylor & Francis.
- High Power Electromagnetic Radiators: Nonlethal weapons and Other Applications, D.V. Giri, Harvard University Press.
- "Review of Impulse Radiating Antennas", Baum, Farr, Giri, Ch. 16, pp 403-439 in W. R. Stone (ed.) Review of Radio science 1996-1999, Oxford University Press, 1999.
- "From the Electromagnetic Pulse to High-Power Electromagnetics", C. E. Baum, Proc. IEEE, 1992, pp 789-817.
- "Switched Oscillators and Their Integration into Helical Antennas", D. V. Giri, F. M. Tesche, M. D. Abdalla M. C. Skipper and M. Nyffeler, IEEE Trans. on Plasma Science, June 2010.

Faculty may wish to include other articles and additional text material.

GENERAL INFORMATION

Location: Lohas Park

Address: 104 Dosa-ri, Yongpyeong-myeon, Pyeongchang-gun, Gangwon-do, South Korea

Description:

ACCESS :

Nearest major airport is Incheon near Seoul.

Free shuttle bus to Lohas Park will be provided on Sunday, 26 May 2013.

13:00 PM at Koreana Hotel in Seoul.

FEE

The fee for the whole course including the documentation, the room (accommodation from Sunday until Saturday) and all meals for the week is **USD 2,000 (KRW 2,000,000 for Koreans)**. Prices are kept as low as possible in order to allow students to attend this course.

The accommodation is comfortable and very calm. All efforts are made to ensure an effective and profitable instruction. Ethernet connection is available in all rooms and wi-fi in some areas.

Credit cards or personnel checks are not acceptable. Bank transfer only.

Bank transfers should be made in to the HPE201- 2013 account as indicated below.

Participants are reminded to provide their full name, affiliation, and purpose of payment with all remittances accompanying the enrollment form to the HPE201-2013 course organizer. All bank charges for remittance must be borne by the applicants.

PAYMENT

Bank Name : Woori Bank
Account holder: 한국군사과학기술학회(HPE201)
Account Number: 1005-402-109396
Code BIC (SWIFT): HVBKCRSEXXX

Confirmation of Payment:

Acknowledgement of payment will be made to each participant upon receipt of payment. Participants should bring the payment confirmation letter to the course registration desk.

Refunds

The course fee will be refunded (less USD 200. - administrative fee) if cancellation of enrollment is received before May 1, 2013. The course organizers should be notified immediately by e-mail or fax followed by a written request for refund.

IMPORTANT DATES

Payment deadline: April 1, 2013
Last day of refund: May 1, 2013 (administration fees deducted)
Course: **May 26 to June 1, 2013**

OTHER SOURCES OF INFORMATION

Course website: will be constructed in www.kimst.re.kr
Weather forecast: www.kma.go.kr
Maps of Korea: maps.google.co.kr
Tourism information: en.yes-pc.net
www.visitkorea.or.kr
Hotel in Seoul : www.koreanahotel.com

ENROLMENT FORM

**High-Power Electromagnetics (HPEM)
ENVIRONMENTS, INTERACTIONS, EFFECTS, AND HARDENING**

May 26 to June 1, 2013

PLEASE PRINT CLEARLY

Name:

First name:

Position:

Organization:

Address:

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Telephone: **Fax:**

E-mail:

Brief Description of your HPE and / or related Activities:

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Type of Student (circle one): **Participating** **Auditing** **Either**

(See 'prerequisites' on page 3 for detail)

Signature of the Participant

(This form can be photocopied)

Send your completed enrolment form via e-mail (nh2756@add.re.kr)

Maps and Photos

