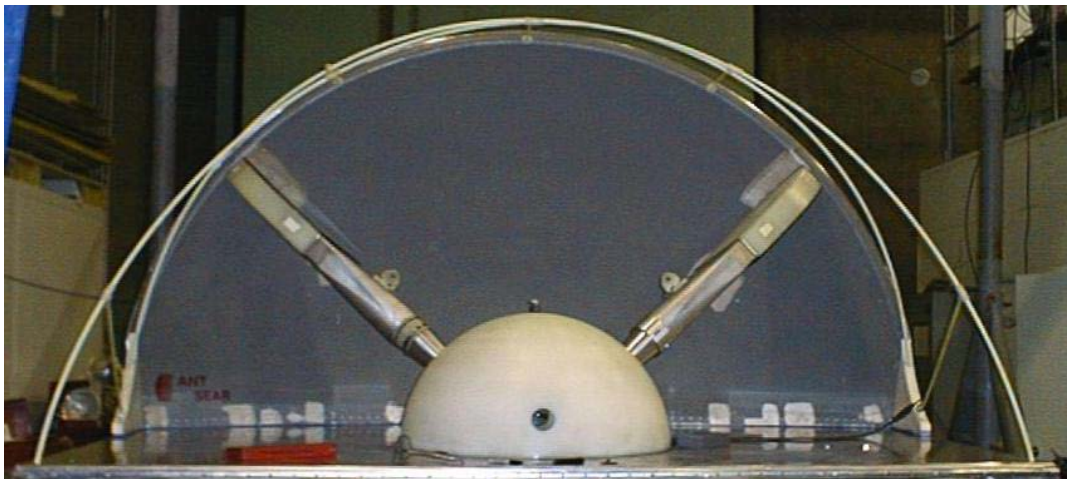


**Announcing a one week course**

# **HIGH-POWER ELECTROMAGNETICS (HPEM)**

**ENVIRONMENTS, INTERACTIONS, EFFECTS, AND HARDENING**

**Course HPE 201-2011**



**September 18 - 24, 2011  
“Schloss Noer” Germany**

**Organized by**

**Dr. Lars Ole Fichte**  
Helmut-Schmidt-Universität Hamburg, Germany

## INTRODUCTION

The EMP course, titled EMP Interaction and Hardening (EMP 201) was first held at New Mexico Tech in Socorro NM 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.



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 and Switzerland in 2009.

## ORGANIZATION

The HPE 201-2009 is sponsored by SUMMA Foundation, USA and organized by **Helmut-Schmidt-Universität Hamburg**, Germany.

The contact persons are:

Registration and secretary: xxxxxxxxxxxxxxxxxxxx E-mail: yyyyyyyyyyyyyyy

Organizer: **Dr. Lars-Ole Fichte** E-mail: [lars-ole.fichte@hsu-hh.de](mailto:lars-ole.fichte@hsu-hh.de)

## INTENTION

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 this domain
- students, assistants and professors eager to enrich their know-how
- technical sales people working for the promotion of installations and equipment in these fields.

## **FACULTY**

Faculty team members are:

Dr. Dave Giri, USA (will also serve as the Course Director)  
Dr. Robert Gardner, USA  
Dr. Fred Tesche, USA  
Dr. Frank Sabath, Germany  
Dr. Parmantier, France  
Dr. Juergen Bohl, Germany.

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 may be seen at his website: [www.dvgiri.com](http://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 Dept. of ECE, University of New Mexico, Albuquerque, NM. Dr. Giri has taught graduate and undergraduate courses in the Dept. 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 co-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; 18 September 2011***

- 14:00: Registration
- 17:00: Happy Hour
- 19:00: Dinner
- 20:00: Evening will be devoted to the introduction of students, division into teams, familiarization with course outline and what is expected in the course.

### ***Monday: 19 September 2011***

- 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 (20 - 22 September 2011)***

- 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 (23 September 2011)***

- 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 (24 September 2011)***

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.

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

## **GENERAL INFORMATION**

**Location:** Schloss Noer

**Address:** Zum Hegenwolhd 1, D- 24214 Noer, Schleswig-Holstein, Germany

**History:** Schloss Noer is a former country estate, now turned into a meeting center with a boarding house. It is surrounded by an English Landscape Park of 60 acres, bordering the shoreline of the Baltic Sea. The former owners of the Schloss include the Ahlefeld, Rumohr and Borckdorff families, all members of the Danish high aristocracy, before the royal Danish house bought the estate and gifted it to a junior prince, turning him into a Fürst of Noer.

### **ACCESS**

**By air:** Nearest airport is Hamburg. A shuttle transport is going to be available on Sunday, 18th September 2011 from Hamburg Airport.

**By train:** Nearest major railway station is Hamburg. A shuttle transport is going to be available on Sunday, 18th September 2011 from Hamburg Train Station.

**By car:** Schloss Noer is located in a remote area of Schleswig-Holstein and very far away from any major highway. The use of a navigation aid for the trip is strongly recommended.

### **FEE**

The fee for the whole course including the documentation, the room (accommodation from Sunday until Saturday) and all meals for the week costs **Euro 1'800.-.**

Prices are kept as low as possible in order to allow students to attend this course.

The accommodation is simple but comfortable and very calm.  
All efforts are made to ensure an effective and profitable instruction.

## **PAYMENT**

Credit cards or personnel checks are not acceptable. Bank transfer only.  
Bank transfers should be made in dollars to the HPE201- 2011 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 HPE201-09 course organizer. All bank charges for remittance must be borne by the applicants.

Bank name:

Account holder:

Bank code:

Account Number:

Code BIC (SWIFT):

Code IBAN:

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 Euro 200.- administrative fee) if cancellation of enrollment is received before August 31, 2011. The course organizers should be notified immediately by e-mail or fax followed by a written request for refund.

## **IMPORTANT DATES**

Payment deadline: September 1, 2011

Last day of refund: August 31, 2011 (administration fees deducted)

Course: **September 18 to September 24, 2011**

## **OTHER SOURCES OF INFORMATION**

Course website: <http://www.>

University:

Weather forecast:

Maps of Germany:

Tourism information:

# ENROLMENT FORM

High-Power Electromagnetics (HPE) and High-Power Microwaves (HPM)

September 18 - 24, 2011

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 2 for detail)

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Signature of the Participant

(This form can be photocopied)

**Send your completed enrolment form via e-mail (xxxxxxxxxxxxxxxx) or fax to the course organizer (+ xxxxxxxxxxxx).**