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# Publications of Proceedings for the RF 2005 7th Workshop on High Energy Density and High Power RF

PRINCIPAL INVESTIGATOR:
**Prof. N.C. Luhmann, Jr.**

Phone: (530) 752-5414
Facsimile: (530) 754-9070


**UNIVERSITY OF CALIFORNIA, DAVIS**
Department of Applied Science and
Department of Electrical and Computer Engineering

The University of California, Davis hosted the High Energy Density and High Power RF 7th Workshop on High Energy Density and High Power RF in Kalamata, Greece, 13-17 June, 2005. The Proceedings cost was supported by these funds from the U.S. Department of Energy. The Proceedings was published through the American Institute of Physics.

High Energy Density and High Power RF 7th Workshop on High Energy Density and High Power RF, Volume **807**, Editors: David K. Abe, Naval Research Laboratory, Washington, D.C. and Gregory S. Nusinovich, University of Maryland College Park, Maryland, 2006.

Following is the Final Program Agenda.

# PROGRAM of RF-05

## Tuesday

8:00 AM Opening remarks: J. Vomvoridis, G. Caryotakis, G. S. Nusinovich

8:30 – 10:00 **Opening Session** *Chair: M. I. Petelin*

8:30 Invited talk: On the preference of cold RF technology for the ILC — A. Gamp
9:00 Invited talk: Warm structures CLIC technology — E. Jensen
9:30 Invited talk: Physics of particle acceleration at very short wavelengths — T. Katsouleas
10:00 Invited talk: Traveling-wave undulators for FELs and synchrotron radiation sources — C. Pellegrini
10:30 Invited Talk: Overview of gyrotron-related research in Greece — J.Vomvoridis

11:00-11:20 ***Coffee break***

**11:20-1:30 Multiple-Beam and Sheet-Beam klystrons** *Chair: B. Levush*

11:20 Invited talk: Basic of radial sheet beam interactions with potential device applications in the microwave K and W bands — T. Wessel-Berg
11:50 Invited talk: MBKs and their utilization in complex microwave systems — E. A. Gelvich
12:10 Experimental performance of the NRL 8-beam, 4-cavity multiple-beam klystron — D. Abe
12:30 Technology progress on multi-beam klystron — Y. Ding
12:50 Mode coupling in sheet-beam klystrons — G. Nusinovich
1:10 W-band sheet-beam klystron design and test — G. Scheitrum

1:30 – 5:00 ***Lunch***

5:00-7:30 **Gyrotrons** *Chair: V. L. Bratman*

5:00 Invited talk: Gyrotron development in EU for present fusion experiments and for ITER — M. Thumm
5:30 Invited talk: CPI gyrotrons for fusion EC heating and current drive — H. Jory
5:50 Invited talk: Dynamics of axial mode competition in the gyrotron backward-wave oscillator — K. R. Chu
6:10 Invited talk: Development of an ultra high frequency gyrotron with a pulse magnet — T. Idehara
6:30 Azimuthal instability of gyrotron radiation — G. S. Nusinovich
6:50 UC Davis 94 GHz gyro-TWA development — N. C. Luhmann, Jr.
7:10 Dynamics and output momentum spectrum of electrons under harmonic resonance in gyrotron resonators — Y. Kominis

## Wednesday

**8:00 – 10:30 Microwave and Millimeter-wave devices** *Chair: G. Scheitrum*

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| 8:00 Invited talk: Advances in the design codes for vacuum electron devices | B. Levush |
| 8:30 Invited talk Two-step LIGA fabrication of mm-wave devices | G. S. Park |
| 9:00 Invited talk: Roads to chaos in microwave circuits and devices | D. M. Vavriv |
| 9:30 Mm-wave source development at Los Alamos | B. E. Carlsten |
| 9:50 Co-axial Ka-band FEM using two-dimensional distributed feedback | A. D. R. Phelps |
| 10:10 Microwave generation from an electron horseshoe distribution: theory and experiment | R. Bingham |

1**0:30-10:50** ***Coffee break***

**10:50 – 1:30 THz sources** *Chair: T. Katsouleas*

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| 10:50 Invited talk: The Jefferson Lab Free Electron Facility | J. R. Boyce |
| 11:20 Invited talk: Sources of coherent THz radiation | V. L. Bratman |
| 11:50 Potentials of clinotrons for THz radiation | D. M. Vavriv |
| 12:10 Invited talk: Tunable THz generation by the interaction of a super-luminous laser pulse with biased semiconductor plasma | D. Papadopoulos |
| 12:30 Novel THz radiation sources | P. Muggli |
| 12:50 Dielectric loaded wakefield structures for RF power generation | M. Conde |
| 1:10 THz generation via GV/m Cherenkov wakefields produced in dielectric tubes | G. Travish |

**1:30 – 5:00** ***Lunch***

**5:00 – 7:30 High Power RF Sources & Technology** *Chair: S. Gold*

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| 5:00 Invited talk: Review and projections of research into High-Power and Conventional RF sources | Jack Agee |
| 5:30 Invited talk: Latest results in SLAC 75 MW PPM klystrons | D. Sprehn |
| 6:00 Invited talk: Progress in CPI microwave tube development | E. Wright |
| 6:30 Invited talk: High-power millimeter- and centimeter-wave magnicons for particle accelerator applications | O. Nezhevenko |
| 7:00 Improved Dispenser Cathodes | R. L. Ives |

## Thursday

**5:00 – 7:30 Poster session (plus wine and cheese party)**

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| 1) Mm-wave magnetron transmitters for high-resolution radars | D. M. Vavriv |
| 2) Investigation of the mm-wave plasma assisted CVD reactor | M. Caplan |
| 3) CLIC 50 MW L-band multi-beam klystron | E. Jensen |
| 4) MBK research at CCR | R. L. Ives |
| 5) Design and test of a submillimeter-wave backward-wave oscillator | R. L. Ives |
| 6) Beam optics analysis – an advanced 3D trajectory code | R. L. Ives |
| 7) Recent advances in high emission scandate cathodes | Y. Wang |
| 8) Investigation of W-Ir alloyed cathodes | Z. Yu |
| 9) Investigation of thermionic cathodes nonuniform emission | Y. Gao |
| 10) Wideband RF structure for mm-wave TWT | L. M. Earley |
| 11) High average power tests of an S-band RF photoinjector | G. Travish |
| 12) Study on efficient axial power extraction in a GW MILO | D. H. Kim |
| 13) Electron pre-bunching for rapid startup and low noise in microwave magnetron by electron priming | G. S. Park |
| 14) Experimental study on photonic crystal reflex klystron using cold cathode | K. H. Jang |
| 15) Study of Ka-band high-power transmission lines | S. Kuzikov |
| 16) Design of a compact multi-MW mode converter | V. A. Dolgashev |
| 17) RF pulse compression using helically corrugated waveguide | A. Phelps |
| 18) Design and simulation of a thermionic cusp-gun gyro-TWA | A. Phelps |
| 19) Construction of a Ka-band cusp gun second-harmonic gyro-TWT amplifier | S. B. Harriet |
| 20) Design and test of a 34 GHz peniotron | L. J. Dressman |
| 21) Development of a 25 MW, 30 GHz gyroklystron | M. E. Read |
| 22) Studies on the electromagnetic spectrum of corrugated waveguides | G. Latsas |
| 23) Coaxial gyrotron cavities with resistive corrugated insert for powerful second-harmonic operation | K. A. Avramides |
| 24) 3-Dimensional self-consistent electrostatic simulations of gyrotron beam tunnel assemblies | J. Gr. Pagonakis |
| 25) Self-consistent post amplification of a gyrotron RF beam by a sheet electron beam | G. E. Anastasiou |
| 26) Electron emission inhomogeneity and low-frequency parasitic oscillations in a gyrotron | G. Sominski |

## Friday

**8:00 – 10:20 Accelerators and Systems I** *Chair: S. Tantawi*

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| 8:00 | Invited talk: Development of a dielectric-loaded accelerator test facility based on X-band magnicon amplifier | S. H. Gold |
| 8:30 | Invited talk: Components for quasi-optically fed linear accelerators | M. I. Petelin |
| 9:00 | Design of high gradient structure for CLIC | A. Grudiev |
| 9:20 | Recent measurements at the SLAC Compton X-ray source | A. E. Vlieks |
| 9:40 | 30 GHz high power production for CLIC | I. Syratchev |
| 10:00 | Selective coupling using patterns of perforations between modes of oversized structures | M. I. Petelin |

**10:20 – 10:40** ***Coffee break***

**10:40 – 11:50 Accelerators and Systems II** *Chair: I. Syrachev*

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|---|---|---|
| 10:40 | Invited talk: Development of an ultra-fast silicon switch for active X-band high power | S. G. Tantawi |
| 11:10 | Experiments on active RF pulse compressors using plasma switches | S. Kuzikov |
| 11:30 | RF systems of the ILC | S. G. Tantawi |

**11:50-1:00 Discussion and closing**