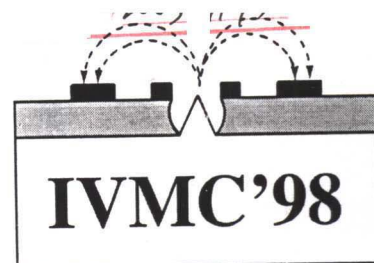


E L E V E N T H

INTERNATIONAL VACUUM MICROELECTRONICS CONFERENCE

JULY 19-24, 1998

Sponsored by **IEEE**



The Grove Park Inn Asheville, NC USA

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IVMC '98 Program at a Glance

Sunday July 19	Monday July 20	Tuesday July 21	Wednesday July 22	Thursday July 23
	7:00-8:30 am Continental Breakfast 8:15 - 8:30 am Welcome	7:00-8:30 am Continental Breakfast	7:00-8:30 am Continental Breakfast	7:00-8:30 am Continental Breakfast
	8:30 - 10:00 am Plenary Session: Field Emission Fundamentals and Modeling	8:30 - 10:00 am RF Power Devices and Other Applications	8:30 - 10:00 am Carbon and Diamond Based Field Emitters	8:30 - 10:00 am Novel Emitter Structures, Concepts and Materials
	10:00 - 10:15 Break	10:00 - 10:15 Break	10:00 - 10:15 Break	10:00 - 10:15 Break
	10:15 - 12:45 Flat Panel Displays and Components	10:15 - 11:45 am RF Power Devices and Other Applications (cont'd)	10:15 - 11:45 am Carbon and Diamond Based Field Emitters (cont'd)	10:15 - 11:15 am Novel Emitter Structures, Concepts and Materials (cont'd)
	12:45 - 2:00 pm Lunch	Free Afternoon	11:45 - 2:00 pm Lunch	11:15 am - 1:00 pm Industry Roundtable
1:00 - 8:00 pm Registration	2:00 - 3:30 pm FEA Characterization and Analysis		2:00 - 3:30 pm Carbon and Diamond Based Field Emitters (cont'd)	Friday & Saturday July 24 - 25, 1998 Summer School "Electron Emission From Diamond"
	3:30 - 3:45 pm Break		3:30 - 3:45 pm Break	
	3:45 - 5:30 pm FEA Characterization and Analysis (Cont'd)		3:45 - 5:30 pm Carbon and Diamond Based Field Emitters (cont'd)	
	5:30 - 7:00 pm Dinner		5:30 - 7:00 pm Dinner	
6:00 - 8:00 pm Reception	7:00 - 9:30 pm Poster Session I	7:00 pm Reception at Deer Park Restaurant Biltmore Estates	7:00 - 9:30 pm Poster Session II	
		7:30 pm Dinner @ Deer Park Restaurant		
		9:00 - 10:30 pm Self Guided Candle Light Tour of Biltmore House		

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Brenda Cash-Hamlin	MCNC
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Peter Wilshire	University of Oxford, UK

Introduction and Welcome

On behalf of the many hard working "volunteers" who have helped me so much, it is a pleasure to welcome you to the 11th in a series of annual meetings on Vacuum Microelectronics, IVMC'98. If imitation is the sincerest form of flattery, then the IVMC series has been extraordinary. Some aspects of vacuum microelectronics is now encountered at meetings of APS, MRS, ICOPS, IVESC, EDS, ACS, MSA, SID, IFES, and many others around the world. Indeed, the subject matter and applications of vacuum microelectronics are totally international, as can be immediately deduced from a cursory examination of the authors for this meeting. We believe it is vital to continue to make serial presentations and not to subdivide into parallel sessions. We sincerely believe that participants learn from one another, however far afield the subject may seem upon first impression. Our research community has representatives from Chemistry, Physics, and Materials Science as well as Electrical, Chemical, Mechanical and Materials Engineering and other disciplines. Industrial interests span products from flat panel displays and telecommunication to defense, vacuum devices, device fabrication, and many others. No single disciplinary perspective is predominant, nor is any irrelevant. If there is any message, it is simply to remain open minded; that is, to listen, to discuss, and to learn from one another. We are still small enough to enjoy the benefits of this extraordinary interdisciplinary and international breadth. I urge you to take full advantage of what is offered at IVMC'98, intellectual, recreational, and cultural.

John J. Hren
Chairman for IVMC'98

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MONDAY, JULY 20, 1998

Plenary Session, 8:30 am - 10:00 am

Field Emission Fundamentals and Modeling

Chairman: *Henry Gray, Naval Research Lab*

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Field Emission Fundamentals and Modeling

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MONDAY, JULY 20, 1998

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Chairman: *Jerry Cuomo, NCSU*

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Flat Panel Displays and Components

Chairman: *Jiang Liu, Army Research Lab*

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Chairman: *Mark Hollis, MIT Lincoln Labs*

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FEA Characterization and Analysis

Chairman: *Jiang Liu, Army Research Lab*

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TUESDAY, JULY 21, 1998

RF Power Devices and Other Applications, 8:39 am - 11:45 am

Chairman: *Dev Palmer, MCNC*

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RF Power Devices and Other Applications

Chairman: *Jiang Liu, Army Research Lab*

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WEDNESDAY, JULY 22, 1998

Carbon and Diamond Based Field Emitters, 8:30 am - 11:45 am

Chairman: *Orlando Auciello, Argonne National Labs*

- 8:30 am I7. Mechanism of Electron Field Emission From Diamond and Diamond-like Carbon**
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- 9:15 am O31. Characterization of Field Emission Cathodes Based on Different Diamond Materials**
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- 9:30 am O32. A New Self-Aligned-Gate-Molding Technique for the Fabrication of Gated Diamond Emitter**
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- 9:45 am O33. Electron Emission from Polycrystalline Silicon Field Emitter Arrays Coated with a Thin Diamond-like Carbon Layer**
H. Mimura, K. Yokoo, G. Hashiguchi*, M. Okada**, T. Matsumoto†, and M. Tanaka†; Tohoku University, JAPAN; *Institute of Industrial Science, JAPAN; **Nippon Steel Semiconductor Corporation, JAPAN; †Single Quantum Dot Project, JAPAN 170
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A. Göhl, A. N. Alimova*, T. Habermann, A. L. Mescheryakova*, D. Nau, V.V. Zhirnov*, and G. Müller; Bergische Universität Wuppertal, GERMANY; *Institute of Crystallography, RUSSIA 172
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- 10:45 am O36. Modeling of the Electron Field Emission Process in Polycrystalline Diamond-Like Carbon Thin Films**
S. R. P. Silva, G. A. J. Amaratunga*, and K. Okano**; University of Surrey, ENGLAND; * University of Liverpool, ENGLAND; ** Kochi University of Technology, JAPAN 176