

SYMPOSIUM

Portola Hotel and Conference Center

Saturday, October 11th, 2008

REGISTRATION (Short Course & Primer Course Only)

Sunday, October 12th, 2008

REGISTRATION (Short Course & Primer Course Only)

Short Course Continental Breakfast

SHORT COURSE: A Modeling Toolbox for RF Designers

Short Course Lunch

REGISTRATION for Symposium (and Primer Course until 4:00pm)

PRIMER COURSE: Basics of Compound Semiconductor ICs

CSICS/BCTM Joint Symposium Opening Reception

Monday, October 13th, 2008

REGISTRATION

Continental Breakfast

SYMPOSIUM OPENING

SESSION A: Plenary Session

SESSION B: Circuit Design Using THz Technologies

SESSION C: Reliability and Quality in GaAs Process Technology

SESSION D: Base Station Devices and Circuits

PANEL SESSION 1: Will the Next Generation Handset Technologies
Please Stand Up?

CSICS/BCTM Joint Exhibition Opening Reception

Tuesday, October 14th, 2008

REGISTRATION

Technology Exhibition

Continental Breakfast

BCTM Keynote Speaker Session (Joint)

SESSION E: TR Switches and Phased Arrays

SESSION F: Advances in Tools and Technologies

Exhibition Luncheon

PANEL SESSION 2: GaN Technology for mm-Wave Applications - Will it
Replace all Others?

PANEL SESSION 3: Is There Anything that CMOS Cannot Do? PA?
Automotive Radar?

SESSION G: CMOS mm-Wave Circuits

SESSION H: High-Speed Digital Communication ICs

CSICS/BCTM Joint Symposium Party

Wednesday, October 15th, 2008

REGISTRATION

Continental Breakfast

SESSION I: X-Band/Broadband GaN Power Amplifiers

SESSION J: High-Speed Mixed-Mode ICs

SESSION K: mm-Wave Circuits and Technology

SESSION L: Wireless and Wired High Data Rate CMOS Communication ICs

PANEL SESSION 4: Which Compound Semiconductor Technology Will
Be Squeezed Out of the Walden Chart?

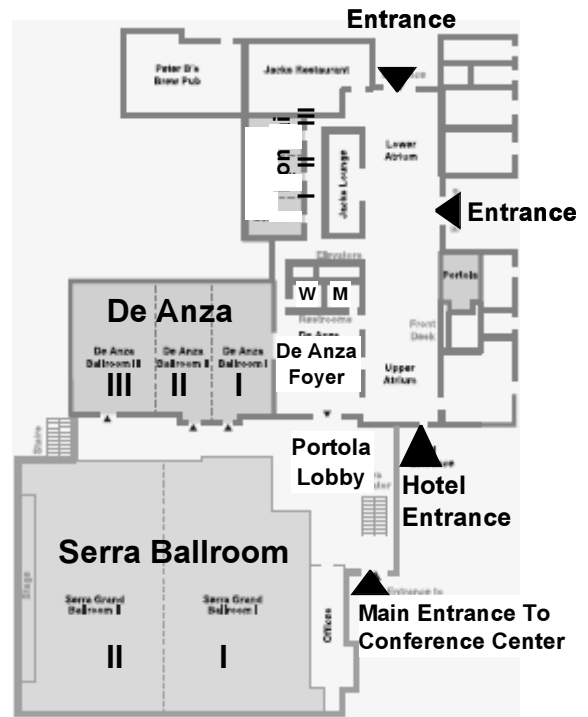
SESSION N: Late News Papers

SESSION O: Advanced Technologies for GaN Transistors

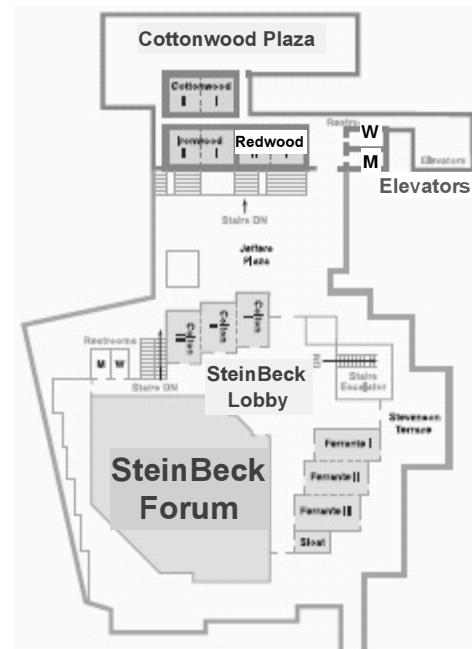
Close of Symposium

Visit us at: <http://www.csics.org/>

LEVEL ONE



LEVEL THREE



AT A GLANCE

Saturday, October 11th, 2008

6:00 p.m. – 8:00 p.m. De Anza

Sunday, October 12th, 2008

7:00 a.m. – 8:00 a.m. De Anza
7:00 a.m. – 8:00 a.m. Bonsai II
8:30 a.m. – 3:45 p.m. Bonsai I, III
12:15 p.m. – 1:15 p.m. Portola Room
3:00 p.m. – 8:00 p.m. De Anza Foyer
4:00 p.m. – 7:00 p.m. Redwood Room
6:00 p.m. – 8:00 p.m. Memory Gardens

Monday, October 13th, 2008

7:00 a.m. – 5:00 p.m. De Anza Foyer
7:00 a.m. – 8:00 a.m. Steinbeck Lobby
8:00 a.m. – 8:30 a.m. Steinbeck Forum
8:30 a.m. – 11:30 a.m. Steinbeck Forum
1:30 p.m. – 3:10 p.m. De Anza I
1:30 p.m. – 3:00 p.m. De Anza II
3:30 p.m. – 4:50 p.m. De Anza I
3:30 p.m. – 5:00 p.m. De Anza II

5:00 p.m. – 8:00 p.m. Serra Ballroom

Tuesday, October 14th, 2008

7:00 a.m. – 5:00 p.m. De Anza Foyer and Portola Lobby
7:00 a.m. – 4:00 p.m. Serra Ballroom
7:00 a.m. – 8:30 a.m. Serra Ballroom
8:30 a.m. – 9:30 a.m. Steinbeck Forum
10:00 a.m. – 11:50 a.m. De Anza I
10:00 a.m. – 12:00 a.m. De Anza II
12:00 a.m. – 2:00 p.m. Serra Ballroom
1:30 p.m. – 3:00 p.m. De Anza I

1:30 p.m. – 3:00 p.m. De Anza II

3:30 p.m. – 5:00 p.m. De Anza I
3:30 p.m. – 5:00 p.m. De Anza II
7:00 p.m. – 10:30 p.m. Chateau Julien Winery

Wednesday, October 15th, 2008

7:00 a.m. – 12:00 p.m. De Anza Foyer
7:00 a.m. – 8:30 a.m. Atrium Lobby
8:30 a.m. – 10:10 a.m. De Anza I
8:30 a.m. – 9:50 a.m. De Anza II
10:30 a.m. – 11:30 a.m. De Anza I
10:30 a.m. – 11:50 a.m. De Anza II
1:30 p.m. – 3:00 p.m. De Anza II

3:30 p.m. – 5:00 p.m. De Anza I
3:30 p.m. – 5:10 p.m. De Anza II
5:10 p.m.

MAIL COMPLETED REGISTRATION FORM AND FEES TO:

Registrar, 2008 IEEE CSIC Symposium
c/o IEEE Meeting and Conference Management
445 Hoes Lane
Piscataway, NJ 08854 USA

Place
Stamp
Here

CHAIR'S MESSAGE

On behalf of the organizing committee and the IEEE Electron Devices Society, the Microwave Theory and Techniques Society, and the Solid-State Circuits Society, I invite you to be a part of the 2008 IEEE Compound Semiconductor IC Symposium (CSICS). This year's symposium will be held October 12th – October 15th in Monterey, CA.

This year we celebrate 30 years of CSICS' history. In 1979, the first meeting of the GaAs IC Symposium was held in Lake Tahoe, Nevada. At that time, the hot topic of the day was high speed digital integrated circuits, with many contributions from corporate labs in the US, Japan and Europe. Through the years, the GaAs IC Symposium grew in size and breadth as the fledgling field of GaAs integrated circuits explored its commercial potential. Corporate and academic programs in GaAs research lead to exciting advances in materials growth, device physics, higher integration levels and commercial applications. As GaAs technology matured, other III-V materials systems came into the mix. In 2004 in Monterey, CA, the Symposium changed its name to IEEE Compound Semiconductor IC Symposium (CSICS) to reflect the evolution of the III-V industry and the interests of its participants.

The CSIC Symposium is the preeminent international forum on developments in integrated circuits using compound semiconductors such as GaAs, InP, GaN, SiGe and other materials. Coverage embraces all aspects of the technology, from materials issues and device fabrication, through IC design and testing, high volume manufacturing, and system applications. And it is fitting that in this 30th year, we return to Monterey, CA, where so many meetings have been held, and where our members always enjoy reconnecting with each other.

This year, the IEEE CSICS is co-locating with the IEEE Bipolar and Bi-CMOS Circuits and Technology Meeting (BCTM) in order to encourage cross-fertilization of ideas and collaboration. Regular full attendees to the CSICS will have access to the BCTM program, and vice versa. Several social events will also allow interaction between our CSICS and BCTM colleagues. Events include the Sunday Evening Opening Reception, the Monday evening Technology Exhibition Opening Reception, the Tuesday Technology Exhibition Luncheon, and the Tuesday Theme Party at the Chateau Julien Winery. We also offer daily breakfast and AM/PM coffee breaks Monday through Wednesday.

The IEEE CSICS is also offering a short course entitled "Modeling Toolbox for RF Designers" on Sunday Oct. 12th, 2008. This short course covers current topics in modeling and design and will be taught by leading experts from industry and the government. In addition, we offer our "Primer Course" which is an excellent tutorial presented within the context of our Symposium technical program. The Primer Course is offered on Sunday Oct. 12th, 2008.

We hope you will join us again this year in Monterey!

William Peatman, Chair
2008 IEEE CSICS



2008 IEEE CSICS

12-15 October, 2008 - Portola Plaza Hotel, Monterey, CA

Registration Form



Registrant(s) Information (Please print clearly)

*ARE REQUIRED FIELDS & MUST BE COMPLETED

*Family/Surname		*Personal Name	
*Company, University or Other Affiliation			
*Mailing Address			*P.O. Box / Mail Stop
*City	*State/Province	*Postal Code	*Country
*Phone Number	*Fax Number		

IEEE Membership Number	*Email Address	
ATTENDEE REGISTRATIONS	ON/BY 19 September	AFTER 19 September
<input type="checkbox"/> IEEE Member	\$590	\$640
<input type="checkbox"/> Non Member	\$640	\$690
<input type="checkbox"/> IEEE Life Member	\$300	\$320
<input type="checkbox"/> Student	\$300	\$320
<input type="checkbox"/> One Day- IEEE Member*	\$300	\$350
<input type="checkbox"/> One Day- Non Member*	\$350	\$400
<input type="checkbox"/> Extra Exhibitor Registration	\$200	\$200

*One Day Registrations- Please select the day you wish to attend: Monday Tuesday Wednesday

Full Registration Includes: admission to all Technical Sessions, a Digest, a conference CDROM, daily breakfast & breaks, entrance to Exhibition Reception & Luncheon, one Opening Reception ticket, and one Theme Party Ticket.
One Day Registration Includes: admission to Technical Sessions for the selected day. The Digest and social events are NOT included.

TUTORIAL (Tutorials are not included in any conference registration category. You may register for Tutorials without registering for the conference)

Short Course 12 Oct 2008 (includes notes and CD)

- Short Course Registration \$400
 - Short Course Student Registration \$200
- Primer Course 12 Oct 2008 (includes notes)
- Primer Course Registration \$175
 - Primer Course Student Registration \$100

Registration Category: (Check all that apply): <input type="checkbox"/> Attendee <input type="checkbox"/> Speaker <input type="checkbox"/> Session Chair <input type="checkbox"/> Author*	How did you hear about CSICS? <input type="checkbox"/> Colleague <input type="checkbox"/> Past Attendee <input type="checkbox"/> CSICS Website <input type="checkbox"/> Other _____	Do you have any special needs? <input type="checkbox"/> Wheelchair Access <input type="checkbox"/> Audio <input type="checkbox"/> Visual <input type="checkbox"/> Vegetarian
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* Please provide paper number(s): _____

ADDITIONAL ITEMS Note: You must register for at least one day of the symposium in order to purchase tickets for the social events. Short Course Only & Primer Course Only registrants will not be able to attend the Symposium Opening Reception or the Theme Party

- Qty _____ **Opening Reception** \$50- 12 Oct 2008 (6-8pm)
- Qty _____ **Theme Party** On/Before 19 September \$75. After 19 September \$130- 14 Oct 2008 (5-10pm)
- Qty _____ **Technical Digest** \$110
- Qty _____ **Digest CD ROM** \$110
- Qty _____ **Short Course Notes Only** \$100
- Qty _____ **Primer Course Notes Only** \$50

Refund Policy: All refund requests must be in writing to IEEE MCM, by emailing CSICS08reg@ieee.org. Full refunds will be honored before 19 September, 2008. No Refunds can be provided after this date.

Registration Total	Additional Items	Total Remittance
\$ _____	\$ _____	\$ _____

METHOD OF PAYMENT: CHECK in US Dollars (Payable to: IEEE/2008 CSICS)
 Visa MasterCard American Express Discover

Card Number _____ Expiration Date _____

Name on Card _____ Authorized Signature _____

Mail or Fax Completed Registration Form & Payment To: IEEE/MCM: Becky Lynn
 445 Hoes Lane, Piscataway, New Jersey 08855 USA
 Fax: +1 732 465 6447 E-mail: CSICS08reg@ieee.org

CORPORATE BENEFACTORS

This year, we are pleased to continue with the IEEE Compound Semiconductor IC Symposium Corporate Benefactors Program. This program allows companies interested in compound semiconductors to show their support of the Symposium by making contributions towards the cost of some of our social events.

These additional resources enable the Symposium to increase the quality of our event, as well as allowing companies an opportunity for some tasteful promotional activities. To discuss any of the benefactor opportunities in more depth, please contact:

William Peatman
Tel: +1-908-668-5000 x5842
E-mail: wpeatman@anadigics.com

As of this printing, the Corporate Benefactors for the 2008 Compound Semiconductor IC Symposium are as follows.

Gold Level Benefactors :

RF MICRO DEVICES, INC.



Silver Level Benefactors:

ANADIGICS
Accel-RF
HRL Laboratories LLC
OMMIC
Skyworks

The Symposium Web Site www.csics.org has become a critical tool for the dissemination of information for prospective attendees of the Symposium. Every year, the web site must be updated and maintained to effectively serve this purpose. We would like to acknowledge the following benefactor for providing the Symposium web site support for the 2008 CSIC Symposium:

Comments regarding the web site or any publicity materials should be directed to the Publicity Chair, Sorin Voinegescu. Links to our corporate benefactors appear on our symposium website.

GENERAL INFORMATION

IEEE 30th CSIC Symposium Oct 12th - Oct 15th, 2008 Portola Hotel Monterey Convention Center Monterey, CA

REGISTRATION

	<u>Advance</u> (Received by Sept. 19 th)	<u>Regular</u> (After Sept. 19 th or on site)
Symposium Registration		
IEEE Member	\$590	\$640
Non-IEEE	\$640	\$690
Student	\$300	\$320
Special 1-day Registration (includes CSICS sessions but no social programs or BCTM session)		
IEEE Member	\$300	\$350
Non-IEEE	\$350	\$400
Short Course		
Student Registration	\$200	\$200
Primer Course		
Student Registration	\$100	\$100
Technical Digest Only		
	\$110	\$110
Short Course Notes Only		
	\$100	\$100
Digest CD ROM Only		
	\$110	\$110
Primer Course Notes Only		
	\$50	\$50
Extra Reception Ticket		
	\$50	\$50
Extra Theme Party Ticket		
	\$75	\$130
Extra Exhibitor Registration		
	\$200	\$200

The full Symposium registration fee includes: attendance at all technical sessions and panels including the BCTM conference; one copy of the CSICS Technical Digest and CDROM; continental breakfasts; and morning and afternoon coffee breaks. Also included is admittance to: the Sunday Opening Reception; the Technology Exhibition Opening Reception on Monday and exhibition lunch on Tuesday; all exhibits; and the exciting Tuesday evening Theme Party. The special 1-day registration fee includes the CD and digest, however, does not include the social activities and the BCTM conference. The Extra Exhibitor Registration enables Exhibitors to attend any/all of CSICS activities including the theme party and welcome reception!

For **ADVANCE REGISTRATION** click on Symposium Registration link on the Symposium website register either through the website or complete the enclosed Advance Registration Form with your remittance of the appropriate fee (check or credit card) **By September 19th, 2008**. Prices will increase after the September 19th deadline.

Mail, Fax, or Email Completed Advance Registration Form to:

IEEE CSICS Registrar,
c/o IEEE Meeting and Conference Management
445 Hoes Lane, Piscataway, NJ, 08854 USA
Tel: +1-732-562-5337
FAX : +1-732-465-6447
Email: csics08reg@ieee.org

The remittance is payable by checks in U.S. dollars only, by personal/company check drawn on a U.S. bank, U.S. currency traveler's checks, or international money order. Checks must be made payable to "IEEE/2008 CSICS" and must be encoded with the bank number, account number, and check number. Credit cards and wire transfers may also be used. Bank drafts from non-U.S. banks and foreign currency are unacceptable and will be returned.

When you register for the Conference, the contact information you provide (including your name, address, phone, and email address) may be shared with CSICS and vendor exhibitors.

We urge you to pre-register to reduce your costs and to simplify your check-in at the Symposium. Your Technical Digest and registration materials will be ready for you at the Advance Registration Desk.

Registration Center:

The Symposium Registration Center is located in the De Anza Foyer on Saturday through Wednesday. The operating hours will be as follows:

Short & Primer Course Registration only

Saturday, October 11th 6:00 p.m. – 8:00 p.m.
Sunday, October 12th 7:00 a.m. – 8:00 a.m.
Sunday, October 12th 3:00 p.m. – 4:00 p.m. (Primer)

Symposium Registration

Sunday, October 12th 3:00 p.m. – 8:00 p.m.
Monday, October 13th 7:00 a.m. – 5:00 p.m.
Tuesday, October 14th 7:00 a.m. – 5:00 p.m.
Wednesday, October 15th 7:00 a.m. – 12:00 noon

Refund Policy:

Please note that after September 19th, 2008, your Advance Registration fee, Short Course fee, Primer Course fee, and fees for additional Symposium Technical Digest, or Reception/Party ticket fees are not refundable. Full refunds, less \$50 handling fee, will be granted for cancellations received in writing by September 19th, 2008. The letter to the Symposium Registrar requesting the refund should state the pre-registrant's name and to whom the refund check should be made payable. Refunds will be made according to the method of payment for the registration, i.e. credit card payments will be refunded to the same credit card, check payments will be refunded by check, etc. All refunds will be processed after the Symposium. **NO PRE-REGISTRATION REFUNDS WILL BE GRANTED AFTER September 19th, 2008.**

ACCOMMODATIONS

Hotel Reservations:

A block of rooms has been reserved at special discounted rates for Symposium participants at our headquarters hotel, the Portola Hotel & Spa at Monterey Bay. Located in the heart of Monterey, the Portola Hotel is adjacent to the Monterey Conference Center. The hotel overlooks the scenic Fisherman's Wharf and the Monterey Bay. It is only four miles from the Monterey Peninsula Airport. Set against the picturesque backdrop of Monterey Bay, Fisherman's Wharf and downtown Monterey, the Portola Hotel. The hotel is within walking distance to the world-class Monterey Bay Aquarium, pristine beaches, Monterey Bay harbor and hundreds of dining and entertainment options.

The hotel guest rooms offer cable TV, radio telephones with voice messaging and a mini-bar. Rooms are available for non-smokers and with wheelchair access. They also feature room service, restaurants, cafes, cocktail lounges with entertainment, sports bars, outdoor pool and spa, health club, and many fine shops.

Hotel Address and Phone Numbers:

Portola Hotel & Spa at Monterey Bay
2 Portola Plaza
Monterey, CA 93940
Phone: 831-649-4511
Fax: 831-649-4115
Guest Fax: 831-372-0620

We ask you to please support your Symposium and more fully enjoy all the activities by staying at our official headquarters hotel. The Symposium relies on attendees staying at the Portola Hotel to reduce the costs charged for the use of meeting rooms. Room reservations should be made as soon as possible, and no later than September 9, 2008. Rooms are available at the special Symposium group rates of \$210 single or double per night. These rates do not include room taxes, currently 10.065 percent plus \$1 Monterey County Tourism Assessment. Rates are net for travel agents. A limited number of rooms have been set aside for the use of bonafide U.S. government employees at the prevailing government rate of \$123 single or \$153 double.

To make a reservation by phone, please call the hotel direct at 831-649-4511 and ask for Reservations. Be certain to request the Special Group Rate for the IEEE CSIC Symposium. Please do not call any regional hotel chain 800 number, since they will NOT be aware of our special arrangements.

To make a reservation via the internet simply go to
<https://resweb.passkey.com/go/ieee2008>

It is strongly recommended that you call the hotel direct thereby obtaining an immediate confirmation. If you choose to mail or fax your request, be sure to follow up on it. After the September 9, 2008 deadline, rooms will be on a space available basis at possibly higher rates. Check-in time is 3 p.m. or later; check-out time is 12 noon. If necessary, you may cancel your reservation at the Portola Hotel up to 48 hours prior to your scheduled arrival. There will be a \$50 charge for early departures; please confirm your departure date at check-in. You can self-park at the Portola Hotel for \$15 per day, or valet for \$18 per day.

TRANSPORTATION

Special Airfares:

Special discounted airfares for the 2008 CSICS Symposium have been negotiated by IEEE through World Travel, Inc. If Saturday night stays or super-saver airfares are not applicable, deeply discounted airfares are available.

IEEE corporate car rental discounts are also available to all attendees of the symposium. Discount code A606000 entitles attendees to receive special rates that have also been negotiated with Avis Rental Car Company, Budget X520000, Hertz Corporate Code 61368, and Enterprise NA24IE1.

Travel arrangements using the negotiated air carriers or the carriers of your choice can be made through World Travel, Inc by calling between the hours of 8:30 a.m. and 5:00 p.m. EST. Monday through Friday. Within the US and Canada, call (800) TRY-IEEE, (+1 800 879 4333); and outside of the US and Canada, call +1 717 556 1100. Or, you may visit their on-line travel service web site at <http://www.ieee.org/travel>. This secure site offers simple and convenient service through which you can search, reserve, and ticket your travel anytime, anywhere. Or you can e-mail your request to ieee@worldtravelinc.com.

Airport Transportation:

The Monterey Peninsula Airport, serving one of the world's favorite destinations for both business and pleasure, offers commercial service with convenient connecting flights to and from anywhere in the world. Or you can fly into the area's major airports, San Jose and San Francisco, and take the scenic drive to Monterey.

Driving Directions:

From Monterey Peninsula Airport/Highway 68 from Salinas:
Take the Monterey Fisherman's Wharf exit, at first light turn right onto Aguajito, turn left onto Del Monte, at third light get into left lane and the Portola Hotel will be to your right.

From North on Highway 1:

Take the Del Monte/Pacific Grove exit, at seventh light, get into the left lane, and drive until you get to the Portola Hotel which will be to your right.

From South/Carmel on Highway 1:

Take the Aguajito exit, turn left at the first light (going under the freeway), follow Aguajito to Del Monte, turn left onto Del Monte, at third light get into left lane and the Portola Hotel will be on your right.

ADDITIONAL INFORMATION

Message Desk:

A Symposium Message Desk will be in operation in the Registration area during registration hours from Sunday, October 12th at 5 p.m. to Wednesday, October 15th at noon. Please advise callers who wish to reach you during the day to ask the hotel operator for the IEEE CSIC Symposium message desk. The Portola Hotel main telephone number is +1-831-649-4511. The main desk will transfer you to the registration desk. Please check the message board periodically during the Symposium.

Distribution of Relevant Information:

The CSIC Symposium will provide an officially designated area near the registration desk to serve as the proper display area for those in need of space to disseminate free material relevant to the CSIC industry. Printed

material of any form will not be allowed to be indiscriminately proliferated in the registration area, hallways, lobbies, or other gathering areas, in proximity to the Symposium, technical sessions, evening social activities, panel sessions, or the exhibition.

No Photographic and/or Recording Equipment:

No photographic or recording equipment will be permitted at any time during the technical sessions of the IEEE CSIC Symposium.

Breakfast and Lunch Locations:

Breakfasts:

The location of breakfasts will be as follows:

Short Course Registrants (only) –
Sunday, October 12th: Bonsai II

Symposium Registrants –
Monday, October 13th: Steinbeck Lobby
Tuesday, October 14th: Serra Ballroom
Wednesday, October 15th: Atrium Lobby

Lunches:

The location of lunches will be as follows:

Short Course Registrants (only) –
Sunday, October 12th: Portola

Symposium Registrants –
Monday, October 13th: Lunch on your own
Tuesday, October 14th: Serra Ballroom
Wednesday, October 15th: Lunch on your own

Coffee Breaks:

The location of coffee breaks will be as follows:

Short Course Registrants (only) –
Sunday, October 12th: Bonsai II

Symposium Registrants –
Monday, October 13th: Steinbeck Lobby
Tuesday, October 14th: Serra Ballroom
Wednesday, October 15th: De Anza Foyer

Symposium Social Events:

SYMPOSIUM OPENING RECEPTION

We welcome you to Monterey on Sunday evening, October 12th from 6:00 p.m. to 8:00 p.m. in the Memory Gardens of the Portola Hotel. Come and meet up with your old friends and make new acquaintances over light hors d'oeuvres and wine, beer, or soft drinks. One free admission is included with your registration including two drink tickets, and extra tickets may be purchased at registration for \$50.

EXHIBITION OPENING RECEPTION

Our exhibitors are hosting a reception to mark the exhibition opening on Monday, October 13th from 5:00 p.m. to 8:00 p.m. in the Serra Ballroom. Every Symposium participant is invited to enjoy the hors d'oeuvres and

schmooze and cruise the exhibits in the Serra Ballroom of the Monterey Conference Center adjacent to the Portola Hotel & Spa at Monterey Bay.

EXHIBITION LUNCH

On Tuesday October 14th at noon the Exhibition Luncheon will be hosted in the Serra Ballroom of the Monterey Conference Center adjacent to the Portola Hotel & Spa at Monterey Bay. The lunch is free to all Symposium participants, so come along, visit with the exhibitors, ask questions, make deals and find out what is going on in our industry.

SYMPOSIUM PARTY

Join us for the Symposium Theme Party on Tuesday, October 14th, from 7:00pm to 10:30pm at Château Julien Wine Estate. The Symposium Theme Party will be jointly held with BCTM. Buses will provide transportation to and from the Estate from the conference hotel.

Although Château Julien Wine Estate is just 10 minutes from the Monterey Peninsula, you'll think you've been magically transported to the French countryside. Nestled in the rolling hills of Carmel Valley, amidst vineyards and gardens, this 16-acre French country winery is a unique setting for anything from elegant sit-down dinners to festive extravaganzas. The Château features a private dining room, conservatory, wine cellar and a garden cobblestone courtyard for outdoor events. Both the exquisitely appointed French country Chateau and grand, rustic Chai (barrel room) provide a beautiful setting for an extraordinary, memorable affair.

Guests are greeted with a taste of Chateau Julien wine at the grand front entrance of the Estate. An experienced winery guide shares the history of Chateau Julien Wine Estate and the essence of winemaking throughout a tour of the Estate including the Chateau, Chai, vineyards and cellar operations. The full production Wine Estate allows guests to learn about every aspect of winemaking, from the vine to the bottle. Contingent upon the winemaking activity, guests may have the opportunity to see grapes being pressed or taste the clusters right off the vines. A variety of six different Chateau Julien wines will be tasted throughout the tour, concluding with a taste of Julien Port or Carmel Cream Sherry in the majestic Great Hall.

This fascinating atmosphere and the good food and refreshments will provide an excellent time to meet with colleagues old and new. One free admission to the Symposium Party is included with each full registration, and extra tickets can be purchased at the registration center for only \$75 prior to Sep 19th and \$130 thereafter.

Monterey Attractions:

Among the many features Monterey itself has to offer is historic Cannery Row, a popular visitor area offering a multitude of unique galleries, shops, wine tasting rooms, and restaurants. Fisherman's Wharf, once the center of Monterey's fishing industry, also offers seafood restaurants, fish markets, and specialty shops. Sight-seeing and whale-watching charter and tour companies operate off the wharf daily. Within driving distance of the Monterey are numerous wineries offering tours, as well as opportunities for scenic hiking, biking, water sports, golf, and even rock climbing.

Monterey Weather:

There is a significant variance in temperatures and weather patterns throughout Monterey County. The average maximum for October in the Monterey Peninsula is 70.5 degrees Fahrenheit and the average minimum 50.8 degrees Fahrenheit. It is advisable to dress in layers, with light to medium weight clothes during the day, and sweaters and jackets at night. For weather information, call 1-831-656-1725.

SYMPOSIUM HIGHLIGHTS

Technical Program:

The technical program for the 2008 IEEE CSIC Symposium consists of 52 technical papers, 4 panel sessions, an industry exhibit, and a short course: "A Modeling Toolbox for RF Designers". We will also be offering our annual introductory level class "Basics of Compound Semiconductor ICs" (Primer Course). This year we have invited 15 papers on a wide range of important topics encompassing device engineering to circuit application using advanced compound and other related semiconductor technologies. In addition, we will continue the tradition of including important "late breaking news" papers.

Exciting new developments from a variety of compound semiconductor disciplines will be presented. This year there is considerable interest in Compound Semiconductors working with Silicon technology. As always there is a tremendous amount of activity in wireless communications, as well as a strong interest in military electronics.

Short Course:

"A Modeling Toolbox for RF Designers"

Short Course Description

RF designers need to have quite a few analytical tools to properly describe the performance of their circuits during the design phase. They need not only to be able to obtain results from their circuit synthesis, but they also need to understand issues and limitations of the simulations. This course will first provide an overview of device modeling and some of the various measurements necessary for both development and validation. It will also cover some of the more commonly used analytical tools necessary for proper design. These include thermal modeling, electromagnetic modeling and device level models. Also, a discussion of some of the inaccuracies and limitations that a designer can encounter while blindly using tools will be discussed.

Topics Covered and Instructors:

- 1) Large Signal Modeling and Measurement overview - Mike Golio, HVVi
- 2) Thermal Modeling for RF/Microwave Design - Bhuvaneshwaran Vijayakumar, Skyworks
- 3) Electromagnetic Modeling – Nick Buris, Motorola
- 4) MOS Device Modeling - John McMacken, RFMD
- 5) Bipolar Transistor Modeling - Michael Schröter, University of Technology Dresden

Short Course Coordinator: Dave Halchin, Peregrine Semiconductor

Direct questions to:

Marko Sokolich
HRL Laboratories, LLC
msokolich@hrl.com

Primer Course: Basics of Compound Semiconductor ICs

The popular primer course "Basics of Compound Semiconductor ICs" is an introductory-level class intended for professionals in the electronic industry with little or no experience in compound semiconductor IC technology. It also provides an excellent review for those with more experience. The course covers: digital and analog/RF/microwave circuits; III/V materials including wide bandgap GaN and SiC; MOS and bipolar devices. The course is tailored to provide background for symposium participants to better understand and appreciate the papers presented, including a glossary of those ever-cryptic acronyms. Throughout the course, comparisons among the compound semiconductor technologies will be presented as well as comparisons with silicon technologies. Also, a number of compound semiconductor integrated circuits along with the intended applications will be described.

Instructor Donald B. Estreich has over 25 years of experience working with compound semiconductor ICs. A copy of the viewgraphs with an extensive bibliography will be distributed to each Primer Course registrant. Ample discussion time will provide an opportunity for participants to have questions answered by the instructor.

Course Agenda:

- 4:00 p.m. Introduction
- 4:05 p.m. Compound Semiconductor Materials
- 4:30 p.m. Device Operation
- 5:00 p.m. Discussion
- 5:10 p.m. Break
- 5:20 p.m. Analog/RF/Microwave Circuits
- 6:00 p.m. RFIC Design Examples
- 6:40 p.m. Summary and Discussion
- 7:00 p.m. Close

The registration fee is \$175 for professionals and \$100 for students. The fee includes a handout containing a copy of the overheads with an extensive reference list. Space is limited, so **ADVANCE REGISTRATION IS HIGHLY RECOMMENDED**. For additional information, please contact the Primer Course Coordinator:

Direct questions to:

Dan Scherrer, Primer Course Organizer and Chair
Northrop Grumman
M5/2486C
One Space Park
Redondo Beach, CA 90278, USA
(310) 812-5892

Registration for the class is as noted in "Registration". A limited number of copies of the handouts will be available to symposium registrants, subject to availability. The cost is \$50.

Panel Sessions:

This year we have four exciting Panel Sessions spread over the 3 days of the technical sessions. These are intended to be timely, thought-provoking, educational, and possibly even controversial. The four panel topics are as follows:

PANEL SESSION 1:

“Will the Next Generation Handset Technologies Please Stand Up?”

Monday, October 13th, 3:30-5:00 p.m.

PANEL SESSION 2:

“GaN Technology for mm-wave Applications - Will it Replace All Others”

Tuesday, October 14th, 1:30-3:00 p.m.

PANEL SESSION 3:

“Is There Anything that CMOS Cannot Do? PA? Automotive Radar?”

Tuesday, October 14th, 1:30-3:00 p.m.

PANEL SESSION 4:

“Which Compound Semiconductor Technology Will Be Squeezed Out of the Walden Chart?”

Wednesday, October 15th, 1:30-3:00 p.m.

Please see the “Symposium Program” section later in this brochure for more complete descriptions of each of these Panel Sessions (listed according to their day and time).

2008 ROCS Workshop:

The 23rd annual ROCS Workshop - formerly known as the GaAs Rel Workshop - will be held in conjunction with CSIC Symposium on Sunday October 12th, 2008, at the Portola Hotel. The ROCS Workshop brings together researchers, manufacturers and users of compound semiconductor materials, devices and circuits. Papers presenting latest results, including work-in-progress and new developments in all aspects of compound semiconductor reliability are presented. For further information please refer to “2008 ROCS Workshop” under “OTHER MEETINGS”.

Technology Exhibition:

The 2008 IEEE CSICS Technology Exhibition will be held on October 13 and 14 in the Serra Ballroom of the Monterey Convention Center, immediately adjacent to the technical session rooms located in the Portola Hotel. The Exhibition is open to all Symposium registrants. The combined exhibition gives companies and attendees access to the entire array of compound semiconductor products and services, i.e., materials, manufacturing, device technology, integrated circuits, related services, commercial and military applications. The early list of exhibitors includes:

Accel-RF
Applied Wave Research
AXT, Inc.
EpiWorks
HRL Laboratories
IQE
KLA -Tencor
Maxtek Components Corp

Momentive Performance Materials
Picogiga International (Soitec Group)
Semiconductor Today
Sonnet Software, Inc.
Synopsys, Inc.
Temescal, a part of BOC Edwards
Veeco Instruments, Inc.
Zeland Software

The Exhibition will feature informative and interesting displays with corporate representatives on hand between the hours of 5:00 p.m. and 8:00 p.m. on Monday, October 13 and between 7:00 a.m. and 4:00 p.m. on Tuesday, October 14. The Exhibition will also host the Exhibition Opening Reception on Monday evening from 5:00 p.m. until 8:00 p.m. and the Exhibition Luncheon from 11:00 a.m. until 1:00 p.m. on Tuesday. All Symposium coffee breaks on Tuesday will be held in the exhibition area.

Those interested in participating in the Exhibition should contact Sue Kingston, 1514 First Street, Manhattan Beach, CA 90266, Ph: +1-310-937-1006, Fax: +1-732-465-6447, Email:s.kingston@ieec.org. For more information, please visit the Symposium website at <http://www.csics.org/> and click on the Exhibition Information link.

Late-Breaking News Papers:

We have solicited papers containing late-breaking news for the Symposium Program. The times and locations of these presentations will be posted at the Symposium, as well as on the Symposium website.

Technical Digest:

Extra copies of the Technical Digest can be purchased by Symposium registrants through Advance Registration. A limited number of digests may also be available for sale at the Registration Desk. The cost of the paper bound digest, if ordered through Advance Registration or purchased on-site is \$110. The CD ROM Digest for 2008 will also be offered for \$110. Both current and past digests will be available through IEEE after the Symposium by mail from the IEEE Customer Service Center, 445 Hoes Lane, Piscataway, NJ 08854 at (800) 701-4333.

Outstanding Paper Award:

The 2008 IEEE CSIC Symposium will select a contributed paper for the Outstanding Paper Award. All contributed regular papers (not the invited papers) will automatically be considered as candidates. Symposium attendees will have an opportunity to provide feedback through a Symposium questionnaire as well as to the Session Chairpersons. The award winner will be publicly announced shortly after this year's Symposium with the award formally presented at next year's Compound Semiconductor IC Symposium.

SHORT COURSES

Sunday, October 12th, 2008

Portola Hotel

Bonsai I, II

8:30a.m. - 3:45p.m.

Course Coordinator: Dave Halchin
Peregrine Semiconductor

“A Modeling Toolbox for RF Designers”

RF designers need to have quite a few analytical tools to properly describe the performance of their circuits during the design phase. They need not only to be able to obtain results from their circuit synthesis, but they also need to understand issues and limitations of the simulations. This course will first provide an overview of device modeling and some of the various measurements necessary for both development and validation. It will also cover some of the more commonly used analytical tools necessary for proper design. These include thermal modeling, electromagnetic modeling and device level models. Also, a discussion of some of the inaccuracies and limitations that a designer can encounter while blindly using tools will be discussed.

Topics Covered and Instructors:

- 1) Large Signal Modeling and Measurement Overview – Mike Golio, HVVi
- 2) Thermal Modeling – Bhuvaneshwaran Vijayakumar, Skyworks
- 3) Electromagnetic Modeling – Nick Buris, Motorola
- 4) MOS Modeling– John McMacken, RFMD
- 5) Bipolar Compact Transistor Modeling - Michael Schröter, University of Technology Dresden

Short Course Schedule

The course will be held on Sunday October 12th and will begin with a continental breakfast. A lunch will be provided as well as a morning refreshment break.

7:00 a.m. **Registration and Breakfast**

8:30 a.m. **Introduction and Overview**

8:35 a.m. **Overview of Large Signal Modeling and Measurements and III-V FETs**
Mike Golio, HVVi

9:45 a.m. **Coffee Break**

10:00 a.m. **Thermal Modeling**
Bhuvaneshwaran Vijayakumar, Skyworks

11:10 a.m. **Electromagnetic Modeling**
Nick Buris, Motorola

12:15 p.m. **Lunch**

1:30 p.m. **MOS Compact Transistor Modeling**
John McMacken, RFMD

2:40 p.m. **Bipolar Compact Transistor Modeling**
Michael Schröter, University of Technology Dresden,
Germany

3:50 p.m. **Questions and Discussion**

4:05 p.m. **Close of Short Course**

Who Should Attend

The short course is a must for everyone interested in knowing the latest in advanced design technologies and their applications to both defense and commercial markets. Our lecturers will cater to a range of interests and experience levels. The course is designed to give all attendees a solid overview of the device technology from device physics fundamentals through specific circuit examples and applications.

Short Course Pre-Registration

So that we may properly plan for attendance, we encourage you to pre-register for the Short Course. A limited number of short course registrations will be available on site Sunday October 12th, 7am.-8am. The registration fee is \$400 for professionals and \$200 for students. This includes the lectures, a book of Short Course Notes, continental breakfast, lunch, and morning/afternoon refreshments. Additional copies of the Short Course Notes may be purchased for \$100 each.

For additional information please direct questions to:

Marko Sokolich, HRL Laboratories, LLC
msokolich@hrl.com

PRIMER COURSE

Sunday, October 12th, 2008
Portola Hotel
Redwood Room
4:00 p.m. - 7:00 p.m.

“Basics of Compound Semiconductor ICs”

Instructors: Donald B. Estreich
Agilent Technologies
Santa Rosa, CA

Course Coordinator: Dan Scherrer
Northrop Grumman

Course Objective and Description:

The popular primer course “Basics of Compound Semiconductor ICs” is an introductory-level class intended for professionals in the electronic industry with little or no experience in compound semiconductor IC technology. It also provides an excellent review for those with more experience. The course covers: digital and analog/RF/microwave circuits; III/V materials including wide bandgap GaN and SiC; MOS and bipolar devices. The course is tailored to provide background for symposium participants to better understand and appreciate the papers presented, including a glossary of those ever-cryptic acronyms. Throughout the course, comparisons among the compound semiconductor technologies will be presented as well as comparisons with silicon technologies. Also, a number of compound semiconductor integrated circuits along with the intended applications will be described.

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OTHER MEETINGS

2008 ROCS Workshop

Reliability of Compound Semiconductors

Sunday, October 12th, 2008
Portola Hotel
Room: DeAnza III
8:00 a.m. - 5:00 p.m.

The 23rd annual ROCS Workshop - formerly known as the GaAs Reliability Workshop - will be held in conjunction with CSIC Symposium on Sunday October 12th, 2008, at the Portola Hotel, Monterey, California. This meeting is sponsored by the JEDEC JC-14.7 Committee on GaAs Reliability and Quality Standards and the EIA, and with co-sponsorship of the Electron Devices Society of the IEEE.

The ROCS Workshop brings together researchers, manufacturers and users of compound semiconductor materials, devices and circuits. Papers presenting latest results, including work-in-progress and new developments in all aspects of compound semiconductor reliability will be presented. Potential authors are invited to submit an electronic copy of a one to two page comprehensive summary, suitable for a 15 minute presentation, to: Peter Erslund, erslandp@tycoelectronics.com (978)-656-2817. The deadline for receipt of submissions is August 4th, 2008; late papers of significant interest will be considered up to the Workshop. The Advanced Program will be published at <http://www.jedec.org/home/gaas/> approximately one month prior to the meeting.

Advance registration for the workshop is \$150.00 for JEDEC and IEEE members and \$175.00 for non-members; on-site registration is \$200.00 at the door. To pre-register, mail your name, Post Office address, email address, and phone number with a check to: EIA/JEDEC, ROCS Workshop, 2500 Wilson Boulevard, Arlington, VA 22201-3834 by Monday September 29th, 2008. Visa, MasterCard and American Express credit cards are also accepted. Registration includes a full day of ROCS presentations, two breaks, a luncheon and a copy of the Proceedings. Late registration will be available from 7:30 a.m. to 8:00 a.m. on the morning of the workshop. For further information or to download a pre-registration form, visit our WEB site at <http://www.jedec.org/home/gaas/>, or contact: Dr. Anthony A. Immerlica, Jr., Workshop Chair, BAE SYSTEMS, P.O. Box 868, MER15-1351, Nashua, NH 03061-0868, (603) 885-1100, anthony.a.immorlica@baesystems.com.

SYMPOSIUM PROGRAM

Monday, October 13th, 2008

REGISTRATION AND CONTINENTAL BREAKFAST

7:00 a.m. – 5:00 p.m.

Registration – De Anza Foyer & Portola Lobby

7:00 a.m. – 8:00 a.m.

Continental Breakfast – Steinbeck Lobby

SYMPOSIUM OPENING

8:00 a.m. – 8:30 a.m.

Steinbeck Forum – Monterey Conference Center

Opening Remarks

2008 Symposium Chair

William Peatman, *ANADIGICS*

Technical Program Overview

2008 Technical Program Chair

Marko Sokolich, *HRL Laboratories, LLC*

SESSION A: PLENARY SESSION

8:30 a.m. – 11:30 a.m.

Steinbeck Forum – Monterey Conference Center

Chairpersons: Dave Halchin, *Peregrine Semiconductor*
Walter Wohlmuth, *RFMD*

8:30 a.m.

- A.1 **THz Bipolar Transistor Circuits: Technical Feasibility, Technology Development, Integrated Circuit Results**
Mark Rodwell¹, E. Lobisser¹, M. Wistey¹, V. Jain¹, A. Baraskar¹, E. Lindi¹, J. Koo¹, Z. Griffith², J. Hacker², M. Urteaga², D. Mensa², Richard Pierson², B. Brar², ¹*University of California, Santa Barbara*, ²*Teledyne Scientific*

9:00 a.m.

- A.2 **The DARPA Compound Semiconductors on Silicon (COSMOS) Program (Invited)**
Mark J. Rosker¹, Victoria Greanya², Tsu-Hsi Chang²,
¹*Defense Advanced Research Projects Agency*,
²*Booz Allen Hamilton Inc.*

9:30 a.m.

- A.3 **GaN MMIC PAs for E-Band (71 GHz – 95 GHz) Radio (Invited)**
M. Micovic, A. Kurdoghlian, H. P. Moyer, P. Hashimoto, M. Hu, M. Antcliffe, P. J. Willadsen, W.S. Wong, R. Bowen, I. Milosavljevic, Y. Yoon, A. Schmitz, M. Wetzels, C. McGuire, B. Hughes, D. H. Chow
HRL Laboratories LLC

10:00 a.m. - 10:30 a.m.

Coffee Break

10:30 a.m.

- A.4 **Integrating III-V Silicon for Future Nanoelectronics (Invited)**
Mantu Hudait, Robert Chau, *Intel Corporation*

Monday, October 13th, 2008

11:00 a.m.

- A.5 **Mobile Broadband System Evolution and RF Technology Requirements for User Equipment**
K. Weller, *Skyworks Solutions, Newbury Park, United States*

11:30 p.m.

End of Session A

11:30 a.m. – 1:30 p.m.

Break for Lunch

SESSION B: Circuit Design Using THz Technologies

1:30 p.m. – 3:10 p.m.

De Anza I – Portola Hotel

Chairpersons: Robb Shimon, *Agilent Technologies*
Jan-Erik Mueller, *Infineon Technologies*

1:30 p.m.

- B.1 **The DARPA FLARE Program: Recent Advances in Ultra High Linearity RF Amplifiers (Invited)**
Sanjay Raman¹, Tsu-Hsi Chang², Richard C. Eden³, Steve Pappert¹,
¹*Defense Advanced Research Projects Agency, Arlington, United States*,
²*Booz Allen Hamilton Inc., Arlington, United States*,
³*Technology Applications, Briarcliff, United States*

2:00 p.m.

- B.2 **mm-Wave Op-Amps Employing Simple-Miller Compensation with OIP3/P_{DC} Ratios of 211 (10 dB NF) and 144 (6 dB NF) at 2 GHz**
Zach Griffith¹, Miguel Urteaga¹, Mark J. W. Rodwell², ¹*Teledyne Scientific and Imaging Company, Thousand Oaks, United States*,
²*University of California, Santa Barbara, Goleta, United States*

2:20 p.m.

- B.3 **A Metamorphic 220-320 GHz HEMT Amplifier MMIC**
A. Tessmann, A. Leuther, H. Massler, M. Kuri, R. Loesch,
Fraunhofer Institute for Applied Solid State Physics, Freiburg, Germany

2:40 p.m.

- B.4 **RFIC Design Methodologies using Perfectly Calibrated Internal Ports (Invited)**
James C. Rautio, *Sonnet Software, Inc., North Syracuse, United States*

3:10 p.m.

End of Session B

SESSION C: Reliability and Quality in GaAs Process Technology

1:30 p.m. – 3:00 p.m.

De Anza III – Portola Hotel

Chairpersons: Walter A. Wohlmuth, *RF Micro Devices*
Dylan Kelly, *Peregrine Semiconductor*

1:30 p.m.

C.1 **GaAs HBT reliability (Invited)**

B. Yeats, T.S. Low, K. Alt, M.E. Adamski, M. Bonse, D.C. D'Avanzo, M. Dvorak, C.P. Hutchinson, M. Iwamoto, F.G. Kellert, D.K. Kuhn, R.L. Shimon, T.E. Shirley, *Agilent Technologies*

2:00 p.m.

C.2 **Study of Electrothermal Stress Effect on RF Performance of InGaP/GaAs Heterojunction Bipolar Transistor-Based Low-Noise Amplifier**

Xiang Liu, Jiann-shiun Yuan, Juin J. Liou, *School of Electrical Engineering and Computer Science, University of Central Florida, Orlando, FL*

2:20 p.m.

C.3 **Measuring IC Layout Effects on Quality and Reliability**

William J. Roesch, Dorothy June M. Hamada, *Triquint Semiconductor, Inc., Hillsboro, Oregon*

2:40 p.m.

C.4 **Reliability of metal-insulator-metal (MIM) after electrostatic discharge (ESD) Stress**

Hajime Sasaki, Noriyuki Tanino, *Mitsubishi Electric Corporation, Mizuhara, Itami, Hyogo, Japan*

3:00 p.m.

End of Session C

3:00 p.m. – 3:30 p.m.

Coffee Break

SESSION D: Base Station Devices and Circuits

3:30 p.m. – 4:50 p.m.

De Anza I – Portola Hotel

Chairpersons: Matthew Poulton, *RFMD*

Peter Katzin, *Hitite Microwave Corporation*

3:30 p.m.

D.1 **High Efficiency WCDMA Envelope Tracking Base-Station Amplifier Implemented with GaAs HVHBTs**

Donald Kimball¹, Myoungbo Kwak¹, Paul Draxler^{1,2}, Jinseong Jeong¹, Chin Hsia¹, Craig Steinbeiser³, Thomas Landon³, Oleh Krutko³, Larry Larson¹, Peter Asbeck¹, ¹*University of California, San Diego, La Jolla, United States*, ²*QUALCOMM, Inc., San Diego, United States*, ³*TriQuint Semiconductor, Richardson, United States*

3:50 p.m.

D.2 **Efficiency Enhancement of Harmonic-Tuned GaN Power Amplifier Using Doherty like Load Modulation**

D. Xiao^{1,2}, D. Schreurs², I. Angelov³, W. De Raedt¹, J. Derluyn¹, M. Germain¹, B. Nauwelaers², G. Borghs¹, ¹*IMEC, Leuven, Belgium*, ²*U. Leuven, Leuven, Belgium*, ³*Chalmers University of Technology, Goteborg, Sweden*

4:10 p.m.

D.3 **RF Power Amplifier IC with Low Memory Effect, Reduced Low Frequency Gain Peak, and Isolated Temperature Tracking for W-CDMA Applications**

Reza Bagger^{1,2}, Hakan Olsson¹, ¹*Royal Institute of Technology, Stockholm, Sweden*, ²*Ericsson AB, Stockholm, Sweden*

4:30 p.m.

D.4 **A Novel High Voltage, Vertical MOSFET for High Power RF Applications**

Mike Golio, Robert Davies, Bishnu Gogoi, Dave Lutz, Brian Battaglia, Robert Neeley, Walt Wright, Dave Rice, Phuong Le, Mike Purchase, Alex Elliot, Son Tran, *HIVi Semiconductors, Inc., Phoenix, United States*

4:50 p.m.

End of Session D

PANEL SESSION 1: Will the Next Generation Handset Technologies Please Stand Up?

3:30 p.m. – 5:00 p.m.

De Anza II – Portola Hotel

Moderators: Pete Zampardi, *Skyworks Solutions*
Matthew Poulton, *RFMD*

Current mature device technologies are HBT and LDMOS/CMOS including BiFET (HBT and FET hybrid). However handset PAs now face on the pressure of high-level integration and multi-functions such as multi-band/multi-mode operation. Which technology will be promising in the future? For example, RFMD, which is very famous for HBT PAs, presented a LDMOS PA for GSM last year. However, in the field of CDMA, HBT and pHEMT are used for PAs still now.

Panel Members:

Bob Broughton	SOS/CMOS	<i>Peregrine Semiconductor</i>
Dr. Chushiro Kusano	LDMOS	<i>Renesas Technology</i>
Peter Wright	GaAs	<i>Triquint Semiconductor</i>
Walt Wohlmuth	GaAs	<i>RF Micro Devices</i>
Jan-Erik Mueller	Si Bipolar	<i>Infineon Technologies</i>
Julio Costa	SOI/CMOS	<i>RF Micro Devices</i>

5:00 p.m.

End of Panel Session 1

**Technology Exhibition
Opening Reception
Serra Ballroom
Monterey Conference Center
5:00 p.m. - 8:00 p.m.**

REGISTRATION AND CONTINENTAL BREAKFAST

7:00 a.m. – 5:00 p.m.

Registration – De Anza Foyer & Portola Lobby

7:00 a.m. – 8:30 a.m.

Continental Breakfast – Grand Ballroom I/II

BCTM Keynote Speaker - G. Amelio

“Technology Convergence Creating New Opportunities for Innovation”

8:30 a.m. – 9:30 a.m.

Steinbeck Forum – Monterey Conference Center

SESSION E: TR Switches/Phased Arrays

10:00 a.m. – 11:50 a.m.

De Anza I – Portola Hotel

Chairpersons: Francois Colomb, *Raytheon*
Kazuya Yamamoto, *Mitsubishi Electric Corp.*

10:00 a.m.

E.1 **Using GaN FETs for High Power RF Switches (Invited)**
J.M. Carroll, *Space and Airborne Systems Division, Advanced Product Center, Raytheon Company, Dallas, United States*

10:30 a.m.

E.2 **X-band Robust AlGaIn/GaN Receiver MMICs with over 41dBm Power Handling**
J.P.B. Janssen¹, M. van Heijningen¹, G. Provenzano¹, G.C. Visser¹, E. Morvan², F.E. van Vliet¹, ¹TNO Defence, Security and Safety, Den Haag, The Netherlands, ²Alcatel Thales III-V Lab, Marcoussis, France

10:50 a.m.

E.3 **A Ka-Band BiCMOS T/R Module for Phased Array Applications**
Byung-Wook Min¹ and Gabriel Rebeiz², ¹University of Michigan, Ann Arbor, United States, ²University of California, San Diego, United States

11:10 a.m.

E.4 **77GHz Low-cost Single-chip Radar Sensor for Automotive Ground Speed Detection**
T. Nagasaku¹, K. Kogo¹, H. Shinoda¹, H. Kondoh¹, Y. Muto², A. Yamamoto², T. Yoshikawa², ¹Central Research Laboratory, Hitachi, Ltd., Tokyo, Japan, ²Automotive Systems, Hitachi, Ltd., Tokyo, Japan

11:30 a.m.

E.5 **Q-Band GaN MMIC LNA Using a 0.15 μ m T-Gate Process**
H.P. Moyer¹, A. Kurdoghlian¹, M. Micovic¹, T. Lee², R.O. Hiramoto², M.J. Be Zaire², S. Nguyen², P. Hashimoto¹, A. Schmitz¹, I. Milosavljevic¹, P.J. Willadsen¹, W.-S. Wong¹, M. Antcliffe¹, M.D. Wetzel¹, M. Hu¹, ¹HRL Laboratories LLC, Malibu, United States, ²Boeing Satellite Development Center, El Segundo, United States

11:50 a.m.

End of Session E

SESSION F: EAdvances in Tools and Technologies

10:00 a.m. – 11:20 a.m.

De Anza II – Portola Hotel

Chairpersons: Marc Rocchi, *OMMIC*
Freek van Straten, *NXP Semiconductor*

10:00 a.m.

F.1 **Improved Drain-Source Current Model for HEMT's with Accurate Gm Fitting in All Regions**
L. S. Liu, J. G. Ma, *School of EE, University of Electronic Science and Technology, Chengdu, China*

10:20 p.m.

F.2 **Submicron InP DHBT technology for high-speed high-swing mixed-signal ICs**
J. Godin, V. Nodjiadjim, M. Riet, P. Berdaguer, O. Drisse, E. Derouin, A. Konezykowska, J. Moulou, J. –Y. Dupuy, F. Jorge, J. –L. Gentner, T. Hohansen, V. Krozer, A. Scavennec, *Alcatel Thales, Marcoussis, France*

10:40 p.m.

F.3 **Ku-band Six-bit RF MEMS Time Delay Network**
Christopher D. Nordquist, Christopher W. Dyck, Garth M. Kraus, Franklin Austin IV, Patrick S. Finnegan, Mark Balance, Charles, T. Sullivan, *Sandia National Laboratories, Albuquerque, NM*

11:00 a.m.

F.4 **Charge trapping and wearout characteristics of self-aligned enhancement-mode GaAs n-MOSFET with Si interface passivation layer and HfO₂ gate oxide**
Feng Zhu, H. Zhao¹, I. Ok¹, H. S. Kim¹, M. Zhang¹, S. Park¹, J. Yum¹, S. Kovesnikov², V. Tokranov³, M. Yakimov³, S. Oktyabrsky³, W. Tsa², Jack C. Lee¹, ¹Microelectronics Research Center, University of Texas, Austin, TX, ²Intel Corporation, Santa Clara, CA, ³University at Albany - SUNY

11:20 a.m.

End of Session F

Technical Exhibition Lunch
Serra Ballroom
Monterey Conference Center
12:00 p.m. – 1:30 p.m.

PANEL SESSION 2: GaN Technology for mm-Wave Applications – Will in Replace all Others?

1:30 p.m. – 3:00 p.m.

De Anza I – Portola Hotel

Moderators: Dan Scherrer, *Northrop Grumman*
Michael Schlechtweg, *Fraunhofer Institute*

GaN power amplifiers, GaN low noise amplifiers, GaN Oscillators, GaN switches, GaN mixers – is there anything that GaN cannot do? Will GaN soon surpass all other technologies (GaAs pHEMT, InP HEMT, SiGe) as being the highest performance, most robust, reliable technology for mm-Wave applications? The fundamental material properties of GaN predict that it will be the preferred technology for mm-Wave applications. Will this materialize into reality as early technology demonstrations evolve into products?

The panelists will present from either the point of view of purveyors of innovations in technology development and/or from the point of view of the module integration needs and requirements.

Panelists will give their views on what is the current “preferred” technology for each of the building blocks of mm-Wave systems and give their roadmap to the future.

Panel Members:
Seyed Tabatabaei EndWave
Jim Carroll Raytheon
Chuck Campbell *TriQuint Semiconductor*
Toshihide Kikkawa *Fujitsu*
Hervé Blanck *UMS*

5:00 p.m.

End of Panel Session 2

PANEL SESSION 3: Is There Anything that CMOS Cannot Do? PA? Automotive Radar?

1:30 p.m. – 3:00 p.m.

De Anza II – Portola Hotel

Moderators: Jean-Olivier Plouchart, *IBM Research*
Sorin Voinigescu, *University of Toronto*

CMOS technology has been expanding into many new product applications, like for example RF cellular phone and WLAN, 10Gb/s SONET, and soon mmWave. This is an amazing achievement for a technology mainly driven by digital and integration density. However one can wonder if this expansion into new applications will accelerate or will reach some limits. Can we determine with reasonable certitude if there are any applications that CMOS can or will not do? For example can CMOS succeed for PA and Automotive Radars?

We have lined up a strong panel of experts in all technologies that will hotly

debate this question. The experts will highlight where the pinch-points of CMOS technology are. Can these deficiencies be circumvented by using new design techniques or the standard digital bulk CMOS technology needs to get some technology booster?

Panel Members:
Dr. Julio Costa *RF Micro Devices*
Pr. Tian-Wei Huang *National Taiwan University*
Dr. Herbert Knapp *Infineon Technologies AG*
Pr. Mark Rodwell *University of California Santa Barbara*

3:00 p.m.

End of Panel Session 3

3:00 p.m. – 3:30 p.m.

Coffee Break

SESSION G: CMOS mm-Wave Circuits

3:30 p.m. – 5:00 p.m.

De Anza I – Portola Hotel

Chairpersons: Jean-Olivier Plouchart, *IBM T.J. Watson*
Kazuya Yamamoto, *Mitsubishi Electric*

3:30 p.m.

G.1 **A V-band Fully-Integrated CMOS Distributed Active Transformer Power Amplifier for IEEE 802.15.TG3c Wireless Personal Area Network Applications (Invited)**
Yung-Nien Jen¹, Jeng-Han Tsai², Tian-Wei Huang¹, and Huei Wang¹, ¹*Dept. of Electrical Engineering and Graduate Institute of Communication Engineering National Taiwan University, Taipei, Taiwan*, ²*Dept. of Communication Engineering, Yuan Ze University, Tao-Yuan, Taiwan*,

4:00 p.m.

G.2 **Wideband PA and LNA for 60-GHz Radio in 90-nm LP CMOS Technology**
Jau-Jr Lin, Kun-Hin To, Bill Brown, Donna Hammock, Michael Majerus, Marcel Tutt and W. Margaret Huang, *Analog and Mixed Signal Technologies, Freescale Semiconductor Inc., Tempe, United States*

4:20 p.m.

G.3 **A 60-GHz Double-Balanced Mixer for Direct Up-Conversion Transmitter on 130-nm CMOS**
F. Zhang, E. Skafidas, W. Shieh, B. Yang, B. N. Wicks and Z. Liu, *National ICT Australia, Department of Electrical and Electronic Engineering, the University of Melbourne, Australia*

4:40 p.m.

G.4 **A DC-94GHz SPST Switch in 65nm CMOS**
A. Tomkins¹, P. Garcia², and S.P. Voinigescu¹, ¹*Edward S. Rogers Sr. Department of Electrical and Computer Engineering, University of Toronto, Canada*, ²*STMicroelectronics, Crolles, France*

5:00 p.m.

End of Session G

SESSION H: High-Speed Digital Communication ICs

3:30 p.m. – 5:00 p.m.

De Anza II – Portola Hotel

Chairpersons: Douglas McPherson, *Zarlink, Canada*
Kimikazu Sano, *NTT, Japan*

3:30 p.m.

H.1 **Digital Optical Networks – PIC Based Systems for Advanced Network Architectures (Invited)**

D. F. Welch, *Infinera, Sunnyvale, United States*

4:00 p.m.

H.2 **Two-channel InP HBT Differential Automatic-gain-controlled Transimpedance Amplifier IC for a 43-Gbit/s DQPSK Photoreceiver**

H. Fukuyama, T. Itoh, T. Furuta, K. Kurishima, M. Tokumitsu, K. Murata, *NTT Corporation, Atsugi, Japan*

4:20 p.m.

H.3 **A Fully Integrated InP DHBT-Based CDR/1:2 DEMUX IC Operating at 100 Gbit/s**

R. E. Makon, R. Driad, R. Lösch, J. Rosenzweig, M. Schlechtweg, *Fraunhofer IAF, Freiburg, Germany*

4:40 p.m.

H.4 **A 90-Gb/s 2:1 Multiplexer with 1-Tap FFE in SiGe Technology**

E. Laskin¹, A. Rylyakov², ¹*U of Toronto, Toronto, Canada*, ²*IBM T. J. Watson, Yorktown, United States*

5:00 p.m.

End of Session H

Symposium Theme Party

**“GaAs ICs Celebrate 30 Years
in Monterey”**

Chateau Julien Winery

7:00 p.m. - 10:30 p.m.

REGISTRATION AND CONTINENTAL BREAKFAST

7:00 a.m. – 12:00 p.m.

Registration – De Anza Foyer

7:00 a.m. – 8:30 a.m.

Continental Breakfast – Atrium Lobby

SESSION I: X-Band/Broadband GaN Power Amplifiers

8:30 a.m. – 10:10 a.m.

De Anza I – Portola Hotel

Chairpersons: Peter Katzin, *Hittite Microwave Corporation*
Jan-Erik Mueller, *Infineon Technologies*

8.30a.m.

I.1 **A Wideband Power Amplifier MMIC Utilizing GaN on SiC**

HEMT Technology

C. Campbell, C. Lee, V. Williams, M.Y. Kao, H-Q Tserng, P. Saunier, *TriQuint Semiconductor, Richardson, Texas*

8:50 a.m.

I.2 **State of the Art 58W, 38% PAE X-Band AlGaIn/GaN HEMTs microstrip MMIC Amplifiers**

S. Piotrowicz¹, E. Morvan¹, R. Aubry¹, S. Bansropun³, T. Bouvet³, E. Chartier¹, T. Dean³, O. Drisse¹, C. Dua¹, D. Floriot², M.A. diForte-Poisson¹, Y. Gourdel³, A.J. Hydes⁴, J.C. Jacquet¹, O. Jardel¹, D. Lancereau¹, J.O. McLean⁴, G. Lecoustre, A. Martin⁵, Z. Ouarch², T. Reveyrand⁵, M. Richard¹, N. Sarazin¹, D. Thenot³ and S.L. Delage¹

¹*ALCATEL-THALES III-V Lab, Marcoussis, France*; ²*United Monolithic Semiconductor, Orsay, France*; ³*THALES Research and Technology, Palaiseau Cedex, France*; ⁴*Qinetiq, Malvern, UK*; ⁵*XLIM, Limoges, France*

9:10 a.m.

I.3 **14W X-Band AlGaIn/GaN HEMT Power MMICs**

C. Tangsheng, Z. Bin, R. Chunjiang, J. Gang, Z. Weibin, C. Chen, S. Kai, Y. Naibin, *National Key Laboratory of Monolithic Integrated Circuits and Modules, Nanjing, China*; *Nanjing Electronic Devices Institute, Nanjing, China*

9.30 a.m.

I.4 **A CW 7-12GHz GaN Hybrid Power Amplifier IC with high PAE using the Load-Impedance Change Compensation Technique**

Y. Inoue, M. Kanamura, T. Ohki, K. Makiyama, N. Okamoto, K. Imanishi, T. Kikkawa, N. Hara, H. Shigematsu and K. Joshin, *Fujitsu Laboratories Ltd., Japan*

9:50 a.m.

I.5 **RLC Matched GaN HEMT Power Amplifier with 2GHz Bandwidth**

K. Krishnamurthy, D. Wang, B. Landberg, J. Martin, *RFMD, Charlotte, North Carolina*

10:10 a.m.

End of Session I

SESSION J: High-Speed Mixed-Mode IC's

8:30 a.m. – 9:50 a.m.

De Anza II – Portola Hotel

Chairpersons: Timothy O. Dickson, *IBM, USA*
Young-Kai Chen, *Alcatel-Lucent, USA*

8:30 a.m.

J.1 **Advances in Analog-to-Digital Converters and Associated IC Technologies (Invited)**

B. H. Walden
The Aerospace Corporation, Los Angeles, United States

9:00 a.m.

J.2 **Millimeter-Wave Delta-Sigma Modulators (Invited)**

A. Hart¹, T. Chalvatzis², P. Garcia³, S. P. Voinigescu¹, *¹University of Toronto, Toronto, Canada, ²Broadcom Corporation, Athens, Greece, ³STMicroelectronics, Crolles, France*

9:30 a.m.

J.3 **A 12.5-Gb/s Pulse Modulator with 6.5-ps FWHM Using 0.1-um InP HEMTs for Ultra-Wideband Impulse Radio Communications**

Y. Nakasha¹, Y. Kawano¹, T. Suzuki¹, T. Ohki², T. Takahashi¹, K. Makiyama¹, T. Hirose², N. Hara¹, *¹Fujitsu Limited, Atsugi, Japan, ²Fujitsu Laboratories Ltd., Atsugi, Japan*

9:50 a.m.

End of Session J

10:00 a.m. - 10:30 a.m.

Coffee Break

SESSION K: Millimeter-Wave Circuits & Technology

10:30 a.m. – 11:30 a.m.

De Anza I – Portola Hotel

Chairpersons: Harris Moyer, *HRL Laboratories, LLC*
Dan Scherrer, *Northrop Grumman*

10:30 a.m.

K.1 **An 80 GHz SiGe Bipolar VCO with Wide Tuning Range Using Two Simultaneously Tuned Varactor Pairs**

Nils Pohl¹, Hans-Martin Rein², Thomas Muschz³, Klaus Aufinger⁴, and Josef Hausner¹, *¹Lehrstuhl für Integrierte Systeme, ²AG Halbleiterbauelemente, ³Lehrstuhl für HochfrequenztechnikRuhr-Universität at Bochum, D-44780 Bochum, Germany, ⁴Infineon Technologies AG, Am Campeon 1-12, D-85579 Neubiberg, Germany.*

10:50 a.m.

K.2 **6.5 Watt, 35 GHz Balanced Power Amplifier MMIC using 6-inch GaAs pHEMT Commercial Technology**

Simon J. Mahon, Alan C. Young, Anthony P. Fattorini and James T. Harvey, *Mimix Asia, Level 13, 80 Mount Street, North Sydney, NSW 2060, Australia.*

11:10 a.m.

K.3 **A V-band High Power and High Gain Amplifier MMIC Using GaAs PHEMT Technology**

Shin Chaki, Hiroataka Amasuga, Seiki Goto, Ko Kanaya, Yoshitsugu Yamamoto, Tomoki Oku, and Takahide Ishikawa, *High Frequency & Optical Device Works, Mitsubishi Electric Corporation, 4-1 Mizuhara, Itami, Hyogo, 664-8641 Japan.*

11:30 a.m.

End of Session K

SESSION L: Wireless and Wired High Data Rate CMOS Communication ICs

10:30 a.m. – 11:50 a.m.

Grand Ballroom II – Hilton Portland & Executive Tower

Chairpersons: T. Dickson, *IBM T.J. Watson*
S. Voinigescu, *University of Toronto*

10:30 a.m.

L.1 **60-GHz-band CMOS MMIC Technology for High-speed Wireless Personal Area Networks (Invited)**

K. Maruhashi, M. Tanomura, Y. Hamada, M. Ito, N. Orihashi and S. Kishimoto, *NEC Corporation, Japan,*

11:00 a.m.

L.2 **A Low-Power mmWave CML Prescaler in 65nm SOI CMOS Technology (Invited)**

Daeik D. Kim¹, Choongyeun Cho¹, Jonghae Kim², Jean-Olivier Plouchart³, and Daihyun Lim⁴, *¹IBM SRDC Hopewell Junction, NY, ²Qualcomm San Diego, CA, ³IBM Research Yorktown Heights, NY, ⁴MIT Cambridge, MA, United States*

11:30 a.m.

L.3 **An 81Gb/s, 1.2V TIALA-Retimer in Standard 65nm CMOS**

Shahriar Shahramian¹, Anthony Chan Carusone¹, Peter Schvan² and Sorin P. Voinigescu¹, *¹The Edward S. Rogers Sr., Department of ECE, University of Toronto, Toronto, ON, ²Nortel Networks, Ottawa, ON, Canada*

11:50 a.m.

End of Session L

12:00 p.m. – 1:30 p.m.

Break for Lunch

PANEL SESSION 4: Which Compound Semiconductor Technology Will Be Squeezed Out of the Walden Chart?

1:30 p.m. – 3:00 p.m.

De Anza II – Portola Hotel

Moderators: Matt D'Amore, *Northrop Grumman*
Erik Daniel, *Mayo Clinic*

Ten to fifteen years ago, III-V semiconductor technologies provided the only practical solutions for multi-Gbps, high performance ADCs, filling out the high speed end of the Walden Chart. Today, CMOS and SiGe also provide solutions in this space, based on improvements in the base transistor technology, and development of effective correction and compensation techniques. CMOS will certainly fill the lower speed portion of the Walden Chart — of the remaining contenders (SiGe and III-Vs), which one will fail to find a home? (Or will both fall!?)

Panel Members:

Bob Walden	<i>The Aerospace Corporation</i>
Peter Schvan	<i>Nortel</i>
Jaesik Lee	<i>Alcatel-Lucent</i>
Bert Oyama	<i>Northrop Grumman</i>
Peter Petre	<i>HRL</i>

3:00 p.m.

End of Panel Session 4

3:00 p.m. – 3:30 p.m.

Coffee Break

SESSION N: Late News Papers

3:30 p.m. – 4:50 p.m.

De Anza I – Portola Hotel

Chairpersons: Mohammad Madihian, *NEC Corporation of America*
Marko Sokolich, *HRL Laboratories LLC*

3:30 p.m.

N.1 **C-band GaN-HEMT Power Amplifier with over 300W Output Power and Over 50% Efficiency**
H. Shigematsu, Y. Inoue, S. Masuda, M. Yamada, M. Kanamura, T. Ohki, K. Makiyama, N. Okamoto, K. Imanishi, T. Kikkawa, K. Joshin, and N. Hara, *Fujitsu Laboratories Ltd., Japan*

3:50 p.m.

N.2 **100GHz+ Gain-Bandwidth Differential Amplifiers in a Wafer Scale Heterogeneously Integrated Technology using 250nm InP DHBTs and 130nm CMOS**
J.C. Li, K.R. Elliott, D.S. Matthews, D.A. Hitko, D.M. Zehnder, Y. Royter, P.R. Patterson, T. Hussain, and J.F. Jensen, *HRL Laboratories LLC, United States*

4:10 p.m.

N.3 **A Cool, Sub-0.2 dB, Ultra-Low Noise Gallium Nitride Multi-Octave MMIC LNA-PA with 2-Watt Output Power**
K. Kobayashi¹, Y.C. Chen², I. Smorchkova², B. Heying², W.-B. Luo², W. Sutton², M. Wojtowicz², A. Oki², ¹*RF Micro Devices*, ²*Northrop Grumman Space & Technology, United States*

4:30 p.m.

N.4 **Differential ECL/CML Synthesis for SiGe BiCMOS**
H. Gustat¹, U. Jagdhold¹, F. Winkler², M. Appel², G. Kell³, ¹*IHP Microelectronics*, ²*Humboldt-Universität zu Berlin*, ³*Fachhochschule Brandenburg, Germany*

4:50 p.m.

End of Session N

SESSION O: Advanced Technologies for GaN Transistors

3:30 p.m. – 5:10 p.m.

De Anza II – Portola Hotel

Chairpersons: Toshihide Kikkawa, *Fujitsu*
Ming-Yih Kao, *TriQuint Semiconductor*

3:30 p.m.

O.1 **GaN Transistors for Power Switching and High Frequency Applications (Invited)**
N. Tsurumi, Y. Uemoto, H. Sakai, T. Ueda, T. Tanaka, D. Ueda, *Matsushita Electric Industrial Co. Ltd., Japan*

4:00 p.m.

O.2 **AlGaIn/GaN-on-SiC HEMT Technology Status (Invited)**
R.P. Smith, S. Sheppard, Y. Wu, S. Heikman, S. Wood, W. Pribble, J.W. Milligan, *Cree, Inc., United States*

4:30 p.m.

O.3 **High f_{max} with High Breakdown Voltage in AlGaIn/GaN MIS-HFETs Using In-situ SiN as Gate Insulators**
M. Kuroda, T. Murata, S. Nakazawa, T. Takizawa, M. Nishijima, M. Yanagihara, T. Ueda, T. Tanaka, *Matsushita Electric Industrial Co. Ltd., Japan*

4:50 p.m.

O.4 **AlGaIn/GaN MOS-HEMT with Stack Gate HfO₂/Al₂O₃ Structure Grown by Atomic Layer Deposition**
Y.-Z. Yue, Y. Hao, J.-C. Zhang, *Xidian University, China*

5:10 p.m.

End of Session O

5:10 p.m.

Close of Symposium

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by September 19th to qualify for advance registration fee.

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2008 BCTM			
SCHEDULE AT A GLANCE			
Sunday – October 12			
Registration open from 3:00PM – 8:00PM			
De Anza Foyer			
Monday – October 13			
Registration open from 7:00AM – 5:00PM			
De Anza Foyer & Portola Lobby			
8:00 AM — 5:15 PM	SHORT COURSE FERRANTE ROOM		
5:00 PM — 8:00 PM	EXHIBITS AND RECEPTION SERRA BALLROOM		
Tuesday – October 14			
Registration open from 7:00AM – 5:00PM			
De Anza Foyer & Portola Lobby			
8:30 AM	Opening Remarks and Announcements		
8:45 AM — 9:30AM	Keynote Speaker – Dr. Gil Amelio “Technology Convergence Creating New Opportunities for Innovation” STEINBECK FORUM AUDITORIUM		
9:30 AM	Vendor Exhibitions Open Coffee Break – SERRA BALLROOM		
9:50 AM — 12:20 AM	1. Classic Analog Steinbeck Forum	2. Device Physics Colton Room	3. Power Devices and ESD Ferrante Room
12:20 PM — 1:50 PM	Exhibit Luncheon with CSICS SERRA BALLROOM		
1:50 PM — 3:30 PM	4. RF Power Amplifiers Steinbeck Forum	5. Advanced Modeling Colton Room	6. BiCMOS Platforms Ferrante Room
3:30 PM	Coffee Break – SERRA BALLROOM		
3:50 PM — 5:30 PM	7. ICs for Radar Applications Steinbeck Forum	8. Exploring the Limits of SiGe HBTs Colton Room	9. Reliability Physics Ferrante Room
7:00 PM — 10:30 PM	Dinner Banquet Chateau Julien Wine Estate		
Wednesday – October 15			
8:00 AM — 10:40 AM	10. Special Session: Emerging Technology/New Directions STEINBECK FORUM AUDITORIUM		
10:40 AM	Coffee Break – De Anza Foyer		
11:00 AM — 12:40 PM	11. mmWave Building Blocks Steinbeck Forum	12. Power Devices for Automotive Applications Colton Room	13. Technologies for System Integration Ferrante Room
12:40 PM — 2:15 PM	Lunch and Luncheon Talk: “Nanomaterials for Device Applications” Dr. M. Meyyappan SERRA BALLROOM		
2:15 PM — 4:20 PM	14. Tuner / UWB Recievers Steinbeck Forum	15. State-of- the-Art Meas. & Char. Colton Room	16. High-Speed ADCs Ferrante Room
END OF CONFERENCE			

NOTES