行政院國家科學委員會補助專題研究計畫成果報告

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※　非晶矽氘及多晶矽材料及元件之研究(1/3)　　　※
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計畫類別：□個別型計畫　　□整合型計畫

計畫編號：NSC89-2215-E-002-006-

執行期間：88年8月1日至89年7月31日

計畫主持人：李嗣涔教授

共同主持人：

本成果報告包括以下應繳交之附件：

□赴國外出差或研習心得報告一份

□赴大陸地區出差或研習心得報告一份

☑出席國際學術會議心得報告及發表之論文各一份

□國際合作研究計畫國外研究報告書一份

執行單位：國立台灣大學

中　華　民　國　　　年　　　月　　　日

行政院國家科學委員會專題研究計畫成果報告

非晶矽氘及多晶矽材料及元件之研究

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執行期限: 88 年 8 月 1 日至 89 年 7 月 31 日
主 持 人: 李嗣涔　國立台灣大學電機系

一、中文摘要

我們成功的研製出即時沉積成長之反向堆疊結構(下端閘極型)非晶矽氘薄膜電晶體，並測試非晶矽氫和非晶矽氘薄膜電晶體在不同的偏壓條件下的穩定度。實驗結果顯示薄膜電晶體的穩定度在使用了以氘取代氫成長的氮化矽當作閘極絕緣層之後的確有所改善，但是它的崩潰電壓也因此而變得比較小。究其原因，從氫及氘的氮化矽紅外線吸收頻譜的研究得知，氘的氮化矽的結構較氫的氮化矽結構來得更加地鬆散，也因此而導致了以氘的氮化矽當作閘極絕緣層的薄膜電晶體的崩潰電壓比以氫的氮化矽當作閘極絕緣層要來得小。

爲了瞭解非晶矽氫(氘)薄膜電晶體衰退的原因，我們成功地研製出一種蕭基接觸之四點探針非晶矽氫(氘)薄膜電晶體的新結構。這種新的結構可以用來研究非晶矽氫(氘)薄膜電晶體的內部性質，同時包括了其電子及電洞的傳導特性，並且不會有失真的現象。而在不同偏壓條件下，關於此一蕭基接觸之四點探針非晶矽氫(氘)薄膜電晶體的穩定度也已經經過測試及分析。由實驗結果可以得知，在負偏壓下使用了非晶矽氘的薄膜電晶體之所以有較佳的穩定度的原因來自於它在帶溝的上半部分所產生的缺陷要比非晶矽氫薄膜電晶體來得少。

Abstract

The as-deposited a-Si:D TFT with inverted staggered structure has been fabricated successfully and the stability of the as-deposited a-Si:H and as-deposited a-Si:D TFTs under different bias stress conditions were tested. It is demonstrated that the stability of TFT is improved by using a-Si:D as the active layer (channel), but the breakdown voltage of the a-Si:D TFTs using a-SiN_X:D as gate insulator is smaller than the a-Si:H TFTs which use a-SiN_X:H as gate insulator. By the study of IR spectra of a-SiN_X:H and a-SiN_X:D layers, the smaller breakdown voltage of a-Si:D TFTs is found to result from the fact that the structure of a-SiN_X:D layer is more porous than a-SiN_X:H layer.

To investigate the sources of degradation of the a-Si:H(D) TFT, a new structure of Schottky-contact gated-four-probe a-Si:H(D) TFT was

successfully fabricated. This new sructure can be used to study both electron and hole conduction of a-Si:H(D) TFT without distortion. The instability analysis of the as-deposited a-Si:H and as-deposited a-Si:D TFT with Schottky-contact gated-four-probe TFT structure under different biases were tested. It is demonstrated that the instability of TFT under negative bias stress is improved by using a-Si:D as the active layer (channel) because of the decrease of the defects near the upper part of the band edge.

二、計畫緣由與目的

液晶顯示器在目前的顯示器領域上，仍佔著極爲重要的角色，雖然有諸多的其他顯示技術向其挑戰，依然無法取代其地位。然而，元件穩定度的問題一直困擾著元件的運作，我們引進氘電漿處理的技術來鈍化非晶矽的缺陷能階，並藉由蕭基接觸之四點探針非晶矽氫(氘)薄膜電晶體之研製瞭解非晶矽氫(氘)薄膜電晶體衰退的原因，希望能改善非晶矽薄膜電晶體的操作。

三、研究方法與成果

非晶矽氫和非晶矽氘薄膜電晶體在不同的偏壓條件下的穩定度如圖一所示。觀察圖一可知，非晶矽氘薄膜電晶體在穩定度方面的表現比非晶矽氫膜電晶體好。然而，非晶矽氘薄膜電晶體的崩潰電壓比非晶矽氫膜電晶體低，原因是由於氮化矽氘合金(SiN_x:D)緻密程度比氮化矽氫合金(SiN_x:H)低，因此由氮化矽氘合金製成之薄膜電晶體崩潰電壓較由氮化矽氫合金製成之薄膜電晶低。圖二 (a) 顯示氮化矽氘合金和氮化矽氫合金的紅外線吸收頻譜。圖二 (b) 顯示 N-H stretching mode 吸收面積對退火溫度作圖，退火時間十分鐘，由圖二 (b) 可知 N-D 消失的比 N-H 快，這證明 D 在氮化矽氘合金中比 H 在氮化矽氫中更容易鑽出，這證實氮化矽氘合金緻密程度比氮化矽氫合金低。

圖三顯示我們研製的蕭基接觸之四點探針非晶矽氫(氘)薄膜電晶體結構，利用此電晶體測得在不同偏壓下通道電導對閘極電壓特性圖，如圖四、五、六所示。在圖四中，特性圖的右、左分枝分別顯示薄膜電晶體中電子傳導與電洞傳導的特性，電子傳導特性曲線隨正閘極偏壓 Vgs 時間增加向右移但斜率未變，而電洞傳導曲線斜率變了，這表示正偏壓下在閘極絕緣層捕捉了負電荷且在 a-Si:H /a-SiN_x:H 介面產生能帶邊緣下半部分的缺陷。在圖五中，電子傳導特性曲線隨負閘極偏壓(-20V)時間增加向左移且斜率稍微減少，而電洞傳導曲線斜率增加，這是因爲正電荷在閘極絕緣層或 a-Si:H /a-SiN_x:H 介面被捕捉且在 a-Si:H /a-SiN_x:H 介面產生能帶邊緣上半部分的缺陷及能帶邊緣下半部分缺陷的移除。在圖六中，電子傳導特性曲線隨負閘極偏壓時間增加向左移且斜率增加，而電洞傳導曲線斜率增加，這表示正電荷在閘極絕緣層或 a-Si:H /a-SiN_x:H 介面被捕捉且在 a-Si:H /a-SiN_x:H 介面能帶邊緣上半部分的缺陷減少及能帶邊緣下半部分缺陷的移

除。

四、 結果與討論

非晶矽氘薄膜電晶體在穩定度方面優於非晶矽氫膜電晶體但卻有較低的崩潰電壓，此肇因於氮化矽氘合金(SiN_x:D)緻密程度比氮化矽氫合金(SiN_x:H)鬆散。

藉由蕭基接觸之四點探針非晶矽氫(氘)薄膜電晶體之研製，我們得以探討非晶矽氫(氘)薄膜電晶體的本質特性而不受到汲極和源極的影響。實驗結果發現，在正偏壓下非晶矽氫薄膜電晶體的不穩定來自於閘極絕緣層捕捉負電荷及在 a-Si:H /a-SiN_x:H 介面產生能帶邊緣下半部分的缺陷；在負偏壓下非晶矽氫薄膜電晶體的不穩定肇因於正電荷在閘極絕緣層或 a-Si:H /a-SiN_x:H 介面被捕捉及在 a-Si:H /a-SiN_x:H 介面產生能帶邊緣上半部分的缺陷、能帶邊緣下半部分缺陷的移除。在負偏壓下非晶矽氘薄膜電晶體的不穩定肇因於正電荷在閘極絕緣層或 a-Si:H /a-SiN_x:H 介面被捕捉及在 a-Si:H /a-SiN_x:H 介面能帶邊緣上半部分的缺陷的減少、能帶邊緣下半部分缺陷的移除。

由上述負偏壓下非晶矽氫薄膜電晶體與非晶矽氘薄膜電晶體之比較可得知，以氘代替氫成長之電晶體之所以能改善其穩定度肇因於能帶邊緣上半部分的缺陷的減少。

五 、計畫成果自評

我們研究蕭基接觸之四點探針非晶矽氫(氘)薄膜電晶體並探討非晶矽氫(氘)薄膜電晶體衰退物理機制，而且引進氘電漿處理技術，成功的善元件的特性。

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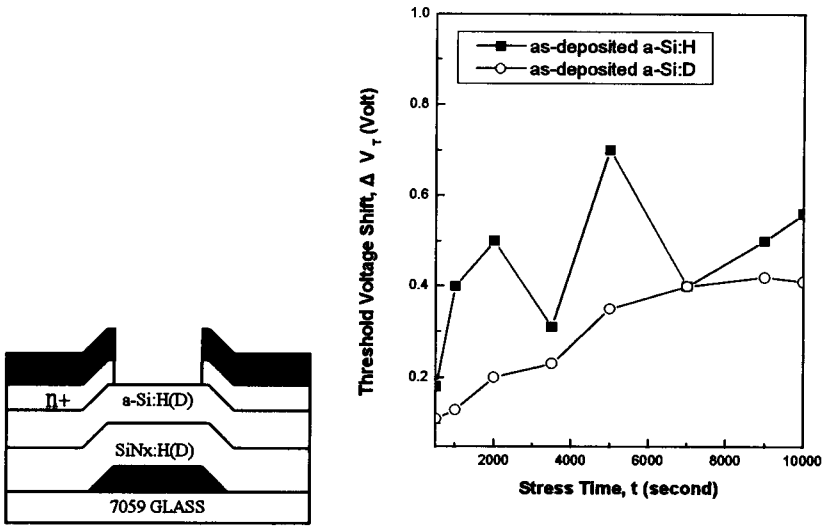
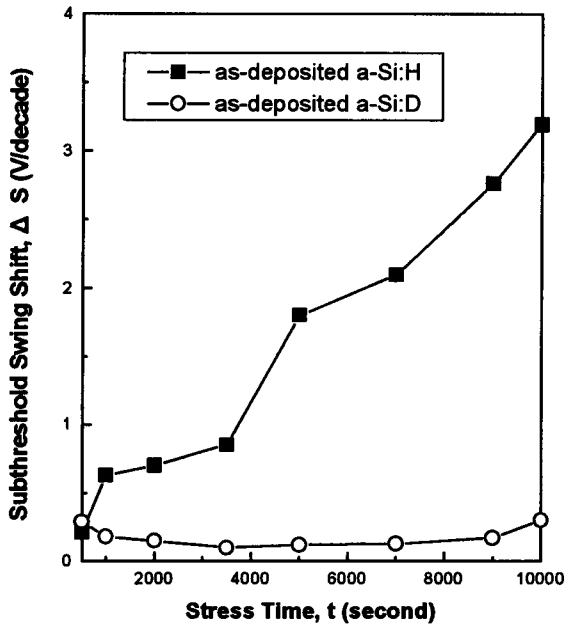
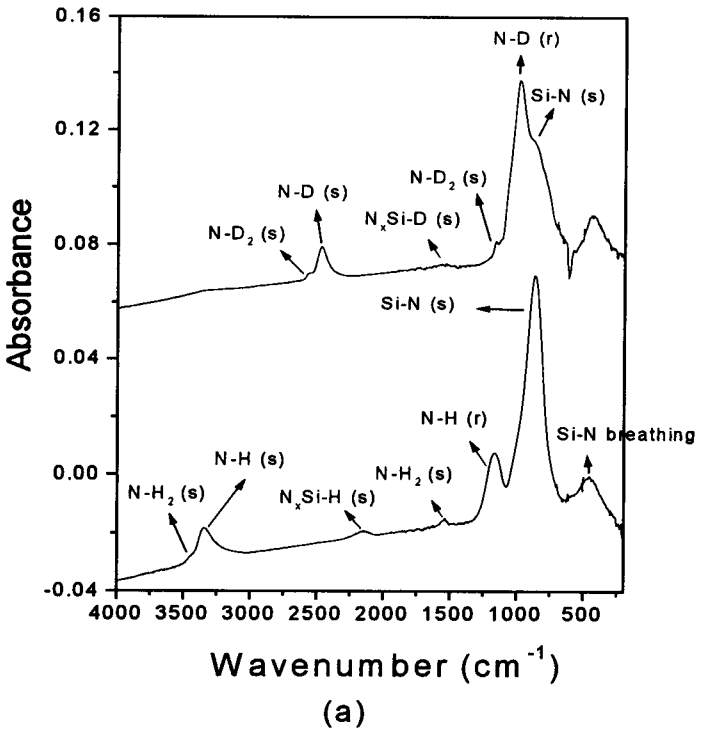


(a)

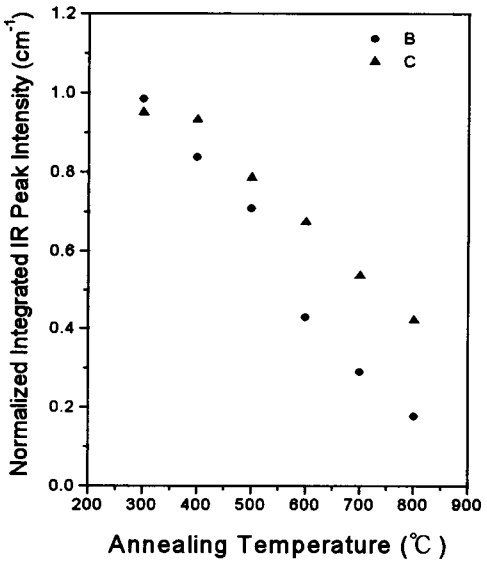


(b)

Figure 1 (a) The threshold voltage and (b) subthreshold swing shifts of the as-deposited a-Si:H (■) and as-deposited a-Si:D (○) TFTs. The stress condition is V_{gs} = 10 V, V_{ds} = 20 V.



(a)



(b)

Figure 2 (a) IR Spectra of a-SiN_X:H and a-SiN_X:D films. (b) The variation of integrated IR peak intensities of a-SiN_x:D and a-SiN_x:H as a function of different annealing temperatures.

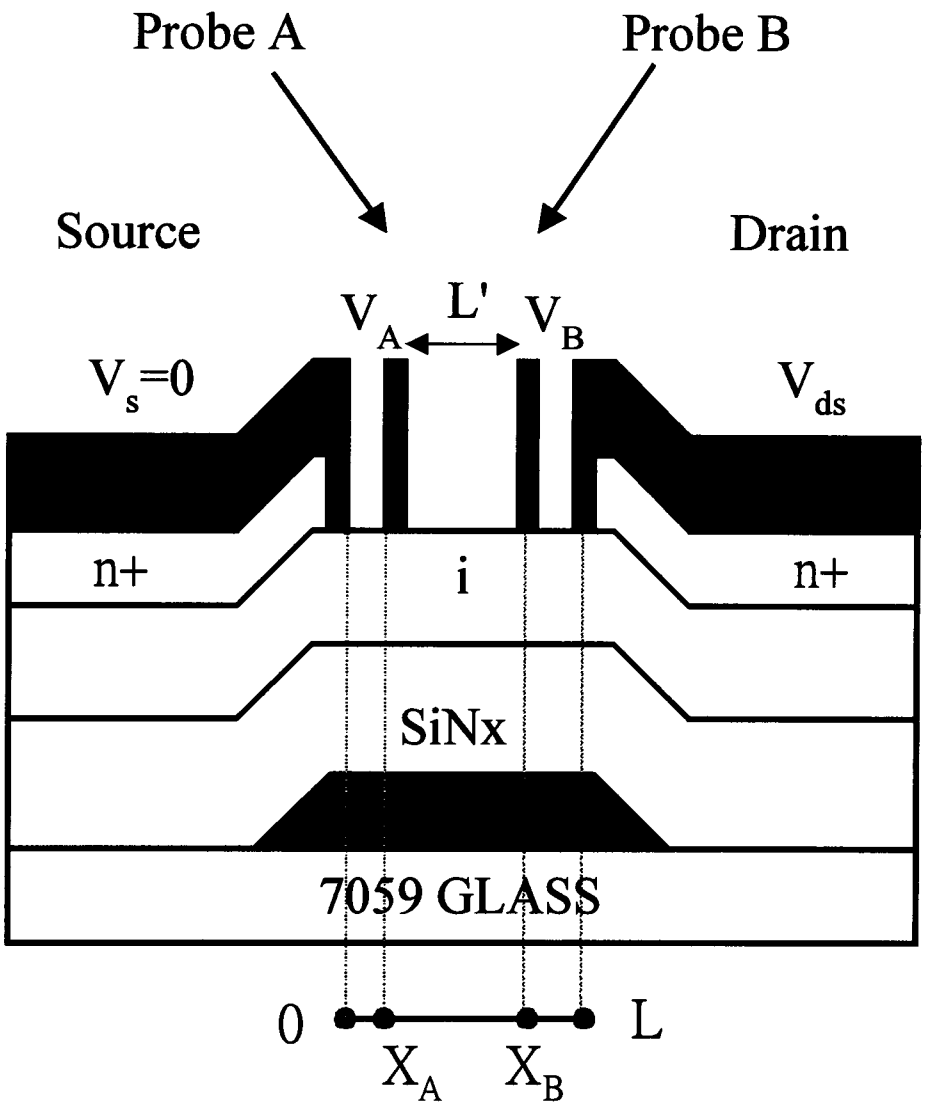


Figure 3 Cross section view of the Schottky-contact gated-four-probe a-Si:H(D) TFT structure. the channel conductance (G) between probes A and B and the effective gate bias voltage (V_{Geff}) can be given by $G = I_d / (V_A - V_B)$ and $V_{Geff} = V_G - (V_A + V_B)/2$.

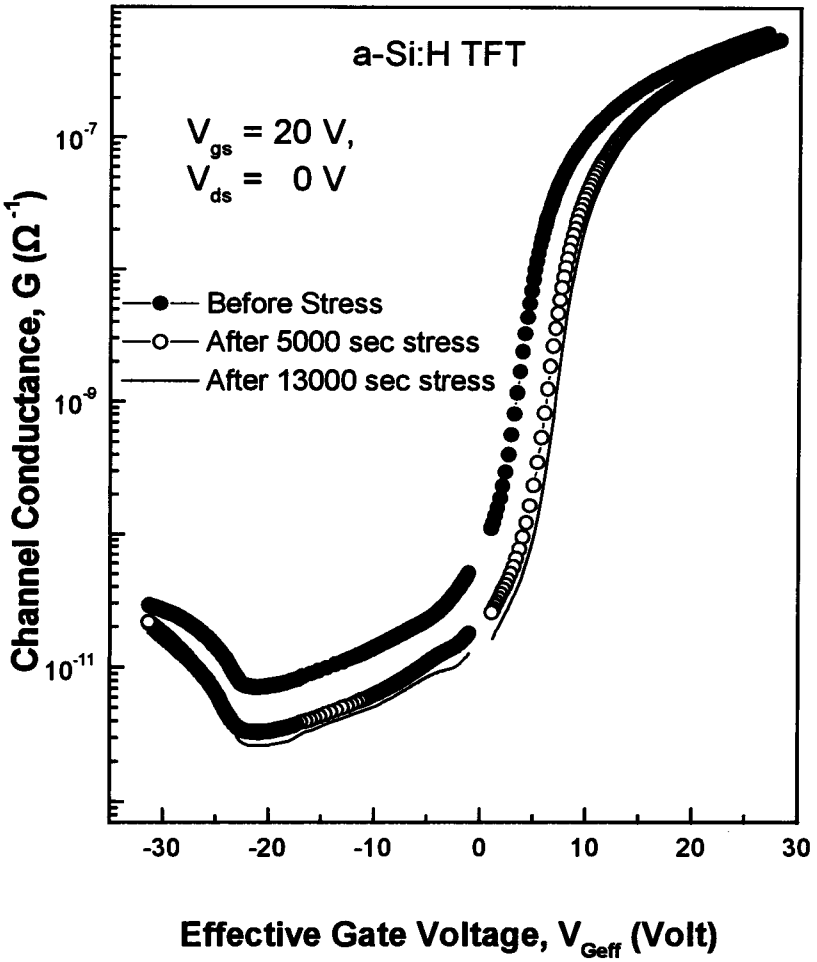


Figure 4 Channel conductance versus effective gate voltage characteristics of Schottky-contact gated-four-probe a-Si:H TFT before (solid symbol), after 20 V bias stress for 5000 seconds (open symbol), and for 13000 seconds (solid line), respectively.

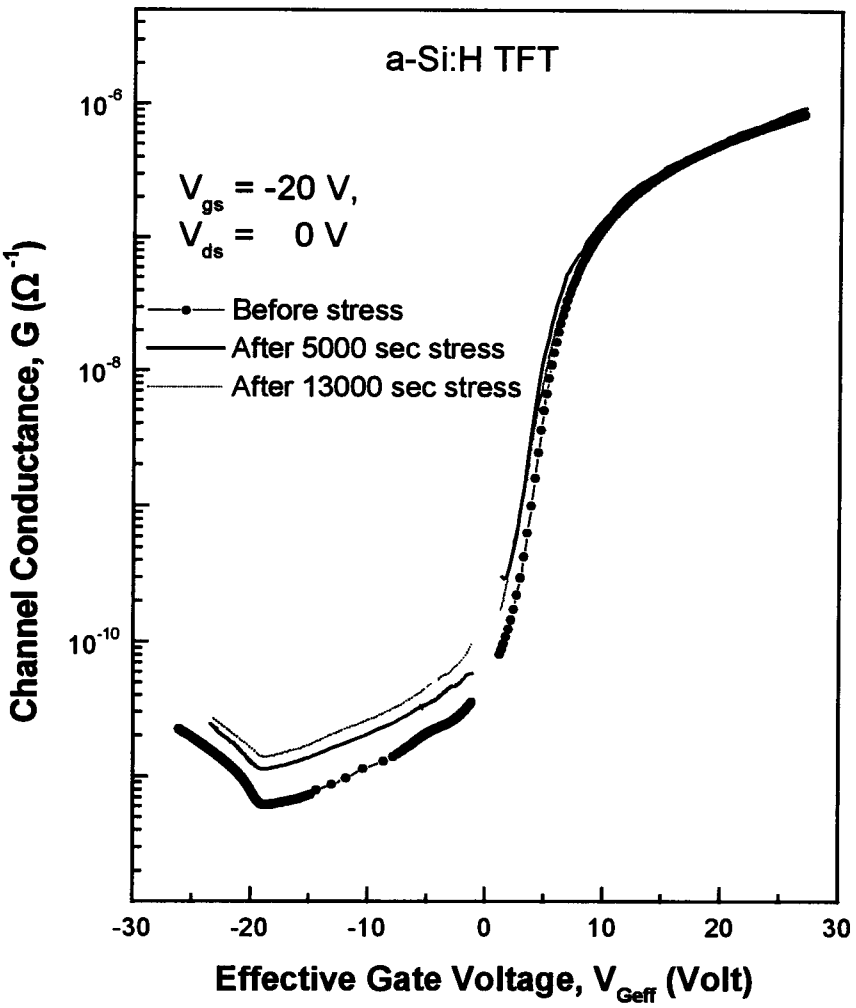


Figure 5 Channel conductance versus effective gate voltage characteristics of Schottky-contact gated-four-probe a-Si:H TFT before (solid symbol), after -20 V bias stress for 5000 seconds (solid line), and for 13000 seconds (dash line), respectively.

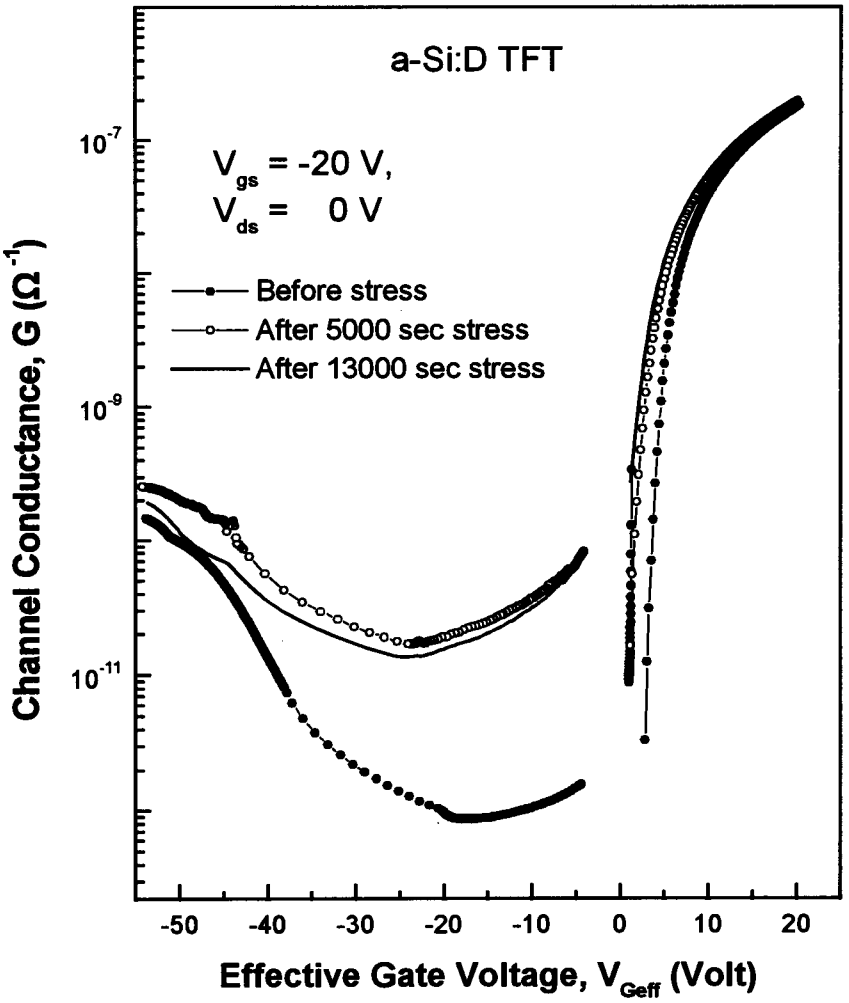


Figure 6 Channel conductance versus effective gate voltage characteristics of Schottky-contact gated-four-probe a-Si:D TFT before (solid symbol), after -20 V bias stress for 5000 seconds (open symbol), and for 13000 seconds (solid line), respectively.

出 國 報 告

計畫名稱：非晶矽氖及多晶矽材料及元件之研究（1/3）

計畫編號：NSC 89-2215-E-002-006

執行時間：88.08.01~89.07.31

計畫主持人：李嗣涔教授

執行單位：台大電機系

本人於 88 年初獲 AT&T Lab 之 Leda Lunardi 博士之邀擔任 1999 年國際電子元件會議（international electron device meeting; iedm）之技術方案委員會（technical program committee）之委員，負責審查量子電子及化合物半導體方面（Quantum Electronics and Compound Semiconductors; QEC）之論文。由於 iedm 是國際上電子元件方面最好，水準最高的會議，能被邀請參加 program committee 是至高的榮譽，因此欣然接受。國內學術界被邀請參加者只有本人及交大電子工程系之汪大暉教授。

參加 program committee 的基本義務有二，第一是參加當年 8 月 2 日在美國佛羅里達州 Jackson ville 所舉辦的技術方案委員會議，選出接受之論文；第二是參加 12 月 6 日到 8 日在美國首府華盛頓所召開的大會。本計畫之出國經費就是爲了參加這兩次會議所支出。

第一次出國係於 8 月 1 日下午抵達佛羅里達州開會之旅館。晚上有接待之晚宴，讓各委員會的委員有機會認識。第二天一早之早餐會，委員會主席即宣佈一整天之行程，時間非常緊湊，到下午 5 點以前，所有的會議方案包括 30 多個 session 接受論文之順序及時間表都要排出來。因此吃完早餐後，我們所有委員便分別到自己的委員會開始工作。我所屬的 QEC 委員會有 13 位委員，但有 4 位委員無法前來，其中 3 位是日本籍的學者，因爲日本經濟不景氣之緣故，經費被刪而無法成行。我們 QEC 委員會總共接到 51 篇論文，要從其中選 20 篇左右的論文出來，論文來自 14 個國家，包括美，英，德，法，加拿大，比利時，義大利，西班牙，挪威，波蘭，日本，韓國，台灣及新加坡。競爭非常激烈，最後出線的以美，日，德，法爲多，台灣也有一篇。選出論文後就要依性質分類，編排發表的順序，並且在每一 session 前加一篇介紹的文字以說明本 session 之重要內容，最後再將本委員會之結果送往大會，安排各 session 之房間及先後順序。一天下來整個 program 均安排妥當，讓人佩服其效率。委員另一項任務是擔任 12 月會議舉行時各 session 之主席及共同主席，我由於是第一次擔任委員，比較沒有經驗，因此沒有爭取成爲主席。

第二次出國係於 1999 年 12 月 5 日低達華盛頓，參與 6 日到 8 日的會議，尤其是 QEC 之 session 時，要在台灣代表宣讀論文時擔任必要時之翻譯工作。這次會議在量子元件方面有量子線及量子點之各種不同量

子元件的論文出現，表示這是未來電子元件發展的趨勢，很值得國人注意。

本次會議從世界 31 個國家總共投稿摘要超過 570 篇，接受的只有 206 篇，接受率爲 36%，分成八大類共 37 個 sessions，包括（1）積體電路及製造，（2）CMOS 元件，（3）CMOS 及相互接觸之可靠度，（4）偵測器及展示器，（5）製程技術，（6）模型及模擬，（7）固態元件及（8）量子電子及化合物半導體。其中來自台灣的論文有 7 篇，包括台大電機系 2 篇，交大電子工程系 2 篇，清華電機系 1 篇，台灣半導體公司（TSMC）2 篇，佔全部論文之三十分之一。

總之爭取成爲重要國際會議之委員，是提升國內學術可見度的一項重要方式，本計畫的出國經費使用於此項任務應該是正確的選擇。

【附件一】1999 年 iedm 之 QEC program committee 委員名單

【附件二】1999 年 iedm 委員工作會議之日程表及打分標準

【附件三】論文摘要評定注意事項

別紙一

QUANTUM ELECTRONICS AND COMPOUND SEMICONDUCTORS

Leda Lunardi
AT&T Labs
100 Schultz Drive
Room 4-238
Red Bank, NJ 07701-7033
Tel: 732-345-3218
Fax: 732-345-3040
Email: leda@research.att.com

Yuji Awano
Fujitsu Laboratories Ltd.
Quantum Electron Devices Lab
10-1 Morinosato-Wakamiya
Atsugi, 243-0197
Japan
Tel: 81-462-50-8247
Fax: 81-462-50-8844
Email: GDD00442@nifty.ne.jp

Augusto Gutierrez-Aitken
TRW
E&TD D1/1050
1 Space Park
Redondo Beach, CA 90278
Tel: 310-812-5536
Fax: 310-813-0418
Email: augusto.gutierrez@trw.com

Paul Heremans
IMEC/MAP
Kapeldreef 75
Leuven, B-3001
Belgium
Tel: 3216-281-521
Fax: 3216-281-501
Email: heremans@imec.be

Hiroshi Ito
NTT - Photonics Laboratories
3-1 Morinosato Wakamiya
Atsugi-shi, Kanagawa, 243-0198
Japan
Tel: 81-462-40-2885
Fax: 81-462-40-4306
Email: hiro@aecl.ntt.co.jp

Erhard Kohn
University of Ulm
Dept. of Electron Devices & Circu
Albert-Einstein-Allee 45
Ulm, D-89081
Germany
Tel: 49-732-502-6151
Fax: 49-731-502-6155
Email: dept-ebs@sunrise.e-technik.uni-ulm.de

Si Chen Lee
National Taiwan University
Dept. of Electrical Engineering
Room 440
Taipei,
Taiwan
Tel: 886-2-236-31482
Fax: 886-2-23697337
Email: sclee@cc.ee.ntu.edu.tw

Takashi Mizutani
Nagoya University
Dept. of Quantum Eng.
Furo-cho, Chikusa-ku
Nagoya, 464-01
Japan
Tel: 81-52-789-5230
Fax: 81-57-789-5232
Email: tmizu@nuee.nagoya-u.ac.jp

Karen Moore
Motorola
2100 East Elliot Rd., EL 508
Tempe, AZ 85284
Tel: 602-413-4972
Fax: 602-413-7918
Email: m382@email.sps.mot.com

Laura Rea
Wright Patterson Air Force
WL/MLPO
3005 P Street, Suite 6
WPAFB, OH 45433-7707
Tel: 937-255-4474 ext. 3213
Fax: 937-255-4913
Email: Laura.Rea@ml.afrl.af.mil

Mark Rodwell
Univeristy of California
Dept. of ECE
Santa Barbara, CA 93106
Tel: 805-893-3244
Fax: 805-893-3262
Email: rodwell@ece.ucsb.edu

Fred Schubert
Boston University
Dept. of ECE
8 Saint Mary's Street
Boston, MA 02215
Tel: 617-353-1910
Fax: 617-353-6440
Email: Fschubert@bu.edu

Alan Seabaugh
Raytheon Systems Company
13532 N. Central Expwy
MS 35
Dallas, TX 75266
Tel: 972-344 3635
Fax: 972-344 3638
Email: a-seabaugh@raytheon.com

1999 IEDM EXECUTIVE COMMITTEE

General Chair
Gary Bronner
IBM
B/630-1, Zip 33A
Route 52
Hopewell Junction, NY 12533
Phone: 914-892-3315
Fax: 914-892-9068
Email: gbronner@us.ibm.com

Technical Program Chair
Mark Law
University of Florida
535 New Engineering Bldg.
Dept. of ECE
Gainesville, FL 32611-6130
Phone: 352-392-6459
Fax: 352-392-8381
Email: law@tec.ufl.edu

Technical Program Vice Chair
Judy Hoyt
Stanford University
Solid State Electronics Labs
CISX, Room 325X, MC 4075
Stanford, CA 94305-4075
Phone: 650-725-7290
Fax: 650-723-4659
Email: hoyt@ee.stanford.edu

Publications Chair
Ken O
University of Florida
539 New Engineering Bldg.
Dept. of ECE
Gainesville, FL 32611-6130
Phone: 352-392-8412
Fax: 352-392-8381
Email: kko@tec.ufl.edu

European Arrangements Co-Chair
Joel Hartmann
CEA-LETI
Dept. Microelectronique
17 Rue des Martyrs
Grenoble Cedex 9, 38054
France
Phone: 33-4-76-883991
Fax: 33-4-76-889457
Email: JHARTMANN@sorbier.cea.fr

European Arrangements Co-Chair
Bruno Ricco
University of Bologna
DEIS
Viale Risorgiemento 2
Bologna, 40136
Italy
Phone: 39-51-644-3018
Fax: 39-51-644-3073
Email: bricco@deis.unibo.it

Asian Arrangements Co-Chair
Takemitsu Kunio
NEC Corporation
1120 Shimokuzawa
Sagamihara, Kanagawa 229
Japan
Phone: 81-427-71-0796
Fax: 81-427-71-0886
Email: kunio@mel.cl.nec.co.jp

Asian Arrangements Co-Chair
Shih-Wei Sun
United Microelectronics Corp.
No. 10, Innovation Rd. 1
Science Based Industrial Park
Hsin-Chu City, Taiwan
Rep. of China
Phone: 886-3-578-2259 Ext. 22943
Fax: 886-3-578-7975
Email: s_w_sun@umc.com.tw

Short Course Chair
D.B.M. Klaassen
Philips Research Laboratories
Building WAG 1
Professor Holstlaan 4
Eindhoven, 5656 AA
The Netherlands
Phone: 31-40-2744251
Fax: 31-40-2743390
Email: klaassen@natlab.research.philips.com

Short Course Vice Chair
Mark Rodder
Texas Instruments
13560 N. Central Expwy.
MS 3739
Dallas, TX 75243
Phone: 972-995-2873
Fax: 972-995-2770
Email: m-rodder@ti.com

Publicity Chair
Morgan Thoma
Bell Laboratories, Lucent Technologies
Dept. 5381c1000, Room 1W417
9333 S. John Young Parkway
Orlando, FL 32819-8698
Phone: 407-371-7416
Fax: 407-371-7577
Email: mjthoma@lucent.com

Publicity Vice Chair
Jon Abrokwah
Motorola Semiconductor Products Sec.
NCSG, 2100 E. Elliott Rd.
MS: EL-508
Tempe, AZ 85284
Phone: 602-413-3319
Fax: 602-413-5934
Email: aypy90@email.sps.mot.com

Treasurer
Michael Gaitan
NIST
IC Technology Group
Semiconductor Electronics Div.
Building 225, Room B-360
Gaithersburg, MD 20899
Phone: 301/975-2070
Fax: 301/948-4081
Email: gaitan@nist.gov

Conference Manager
Phyllis Mahoney
Widerkehr & Associates
101 Lakeforest Boulevard
Suite 400B
Gaithersburg, MD 20877
Phone: 301/527-0900
Fax: 301/527-0994
Email: pwmahoney@aol.com

Conference Manager
Melissa Widerkehr
Widerkehr & Associates
101 Lakeforest Boulevard
Suite 400B
Gaithersburg, MD 20877
Phone: 301/527-0900
Fax: 301/527-0994
Email: widerkehr@aol.com

附件二

iedm

Suite 400B
101 Lakeforest Boulevard
Gaithersburg, MD 20877
Telephone: 301/527-0900
Facsimile: 301/527-0094

May 26, 1999

MEMORANDUM TO: Technical Subcommittee Members

FROM: Mark Law
Technical Program Chair

SUBJECT: August 1-2, 1999 Technical Program Planning Meeting

It is my pleasure to invite you to participate in the 1999 IEDM Technical Program Meeting at the:

Radisson Riverwalk Hotel
1515 Prudential Drive
Jacksonville, FL 32207
Tel: 904-396-5100
Fax: 904-396-8007

Your attendance at this meeting is required and one of your most important responsibilities as a member of the 1999 IEDM Subcommittee. The paper selection process employed by the IEDM has, in the past, been directly responsible for the high quality associated with the IEDM. **Please plan to attend the meeting until at least 6:00 p.m.**

RESERVATIONS
A block of rooms has been reserved for Friday, Saturday, Sunday, and Monday evenings, July 30 - August 2. Call the hotel directly at 904-396-5100 to make a reservation. RESERVATIONS MUST BE RECEIVED BY JULY 9 TO GUARANTEE A ROOM. Please tell the reservationist that you are with the IEDM, or the International Electron Devices Meeting to reserve your room at the group rate of $99.00 single, $109.00 double. You must guarantee your room with a credit card or check. Check in is 3:00 pm and check out is 12:00 pm.

Hotel confirmation 7601

SCHEDULE

Sunday, August 1

6:00 p.m. - 7:30 p.m. Complimentary cocktail reception

Monday, August 2

7:30 a.m. - 8:00 a.m. Complimentary continental breakfast

8:00 a.m. - 6:00 p.m. Technical Program Planning Meeting.

At this meeting the technical program will be selected and the conference agenda organized. As those of you who have participated in prior paper selection meetings know, there is much to do and time flies. This meeting is devoted to the selection of papers and organization of the individual sessions. In addition, we will completely organize the December meeting, the Advance Program, and publicity releases by individual subcommittee. Accordingly, we will begin the meeting sharply at 8:00 a.m. A detailed agenda of the meeting is enclosed.

PAPER SELECTION PROCESS
Detailed instructions are enclosed for the criteria for paper selection. Remember the bulk of the reviewing process is done in advance of the meeting. At the meeting we will only have time to review your ratings and reach consensus on difficult papers. Prior to the meeting please take the time to do a careful review of each paper and seek advice of others, if you are uncertain of the review or if it is outside your particular field of expertise. In these cases, make sure you get the specific reasons for the rating from the person assisting you. In the past, it has been found to be particularly useful to put notes directly on the abstracts and bring the entire set arranged in sequential order by paper number for easy access at the Technical Program Meeting. Additionally, you should be prepared to defend your evaluation to the rest of the Subcommittee.

You should receive a set of all contributed abstracts in your Subcommittee via Federal Express on Friday, July 9 (US members) and by July 12 for International members. Please let Phyllis Mahoney know by July 14, if you have not received them. **IT IS IMPERATIVE THAT YOUR SUBCOMMITTEE CHAIR RECEIVE YOUR RATINGS BY JULY 21** so that he/she can compile the results and try to fax them to you by July 27.

EUROPEAN AND JAPANESE SUBCOMMITTEE MEMBERS
Starting with this August's paper selection meeting, the IEDM executive committee has updated its rules for subcommittee membership and made attendance at the August meeting mandatory for committee members from all geographic regions. It is important that international subcommittee members be present at the meeting to actively participate in the paper selection process. Such participation serves to ensure first hand communication of the reasons supporting your reviews, as well as to acquaint international members with a detailed understanding of the IEDM's paper selection procedures.

It is particularly important in your case to:

1. Review your abstracts as soon as possible
2. Send your scores to your Subcommittee Chairs by JULY 21
3. Also send your scores to your respective International Arrangements Chair (Shih-Wei Sun, Asia, and Joel Hartmann, Europe - complete addresses enclosed) They will be contacting you individually to ensure that your reviews are completed on time.

THE ABSTRACTS WILL BE SENT BY FEDERAL EXPRESS TO THE ADDRESS USED FOR THIS MAILING. IF THIS IS NOT A GOOD FEDERAL EXPRESS ADDRESS FOR JULY 9 - 14 DELIVERY, PLEASE CONTACT PHYLLIS MAHONEY IMMEDIATELY WITH AN APPROPRIATE ADDRESS.

Thank you for your continuing efforts to ensure the success of the 1999 IEDM. At this time it is especially important that you renew your efforts to solicit high quality contributed papers. I look forward to seeing you Sunday evening, August 1 at the reception.

Enclosures:
Monday Technical Program Meeting Agenda
Abstract Rating Scheme
Session Chairs Responsibilities after the Technical Program Meeting
Updated Committee List

1999 IEDM
MONDAY TECHNICAL PROGRAM MEETING AGENDA
August 2, 1999
7:30 a.m.

Radisson Riverwalk

7:30 am - 8:00 am	Complimentary continental breakfast
8:00 am - 8:15 am	Introduction
8:15 am - 12:00 pm	Go into Subcommittee Work rooms for final paper selection
12:00 pm - 1:00 pm	Lunch
1:00 pm - 6:00 pm	*Assemble conference

* Organize Technical Sessions
* Select Session Co-chairs
* Prepare session paper listing and program cards
* Write session overviews for Technical Digest
* Write press releases

IEDM
ABSTRACT RATING PROCEDURES

1. FINAL DISPOSITION OF ABSTRACTS

Each abstract must either be accepted for inclusion in the IEDM program or it must be rejected. This determination should be made by the appropriate subcommittee using the rating procedures as aids in arriving at its collective judgement. It is critical that the Subcommittee Chairs determine the ownership of papers assigned to multiple committees by the end of the Sunday Evening Committee Chair's meeting.

Final disposition (accept or reject) will be given to the Technical Program Chair at the August Technical Program Meeting.

2. CRITERIA FOR INITIAL RATING

A. Issues Related to Abstract Quality

- Originality
- Significance (interest, value)
- Documentation (data, results, etc.)
- Clarity (clearly states purpose of work and how much it advances the art - excessively long abstracts should be penalized in this category)
- Accuracy (validity of data, interpretation, etc.)

B. **Issues Not Related to Abstract Quality**

- Subject of abstract is outside the scope of the IEDM as described in the Call for Papers. Give the abstract an "X" rating. This rating should rarely be used.
- Reviewer is unable to knowledgeably or objectively rate paper due to:
  - Reviewer not sufficiently familiar with segment of field which the abstract addresses. Attempt to get an alternate reviewer in this case.
  - In cases of Conflict of interest, give the paper a "C" rating.

3. ABSTRACTS PREVIOUSLY PRESENTED AT OTHER CONFERENCES

The general guidelines are that papers previously presented or published are not eligible for acceptance at the IEDM. The following guideline will be applied for the IEDM with respect to paper acceptance of work presented at informal conferences with limited attendance. If such a submitted abstract **has some definable added value** in the judgement of the subcommittee it can be included in the IEDM technical program. **Bring evidence of previously presented material to the August Meeting for review.**

(OVER)

4. RATING PROCEDURES FOR ABSTRACT QUALITY

We will use a 10 point system of abstract ratings. All abstracts must be given an integer rating with no other qualifications (i.e., no + or - or fractional ratings).

Rating	Criteria
9 - 10	Innovative work of high interest which significantly advances the art; well documented with results; clear and descriptive text; is well conceived and results apparently accurate. Abstract must be included.
7-8	Original work which significantly advances the art and is of interest and value; reasonably well documented with results and text, work is well conceived and apparently accurate. Abstract should be included in program.
5 - 6	Original work which advances the art somewhat but is of questionable interest or value; reasonably well documented with results and text, and apparently accurate. or Original work which significantly advances the art and is of questionable interest or value; reasonably well documented with results or is not clearly presented in text or is of questionable validity/accuracy. Abstract may be included in program depending on consensus of the subcommittee.
3 - 4	Work is of questionable originality, interest or value; however, work is well documented and clear, and appears to be valid/accurate. Abstract should probably not be included in program.
1 - 2	Work is not original, does not advance art, or is of no interest/value; work is poorly documented or quite vague, work is invalid or includes obvious errors or otherwise is of low quality. Abstract must not be included in program.

SESSION CHAIR RESPONSIBILITIES
AFTER THE AUGUST MEETING

The following tasks are critical to the timely production of the Technical Digest and the CD ROM project as well as the improvement of visuals used at the IEDM.

By August 9, Session Chair should contact each author in their session and discuss the following (the conference office will fax you names/phone/fax for accepted authors in your session):

TECHNICAL DIGEST PREPARATION

- Tell them their abstract is accepted. Give them the title and abstract number in the event of two submissions.
- Discuss the following Technical Digest preparation projects and deadlines:
  - The Author Kit with instructions on preparing their extended abstract for publication should arrive by August 18 (USA) and August 25 (Internationals). **If they don't receive it by that date tell them to contact Phyllis Mahoney at tel: 301/527-0900, ext. 103 or fax: 301/527-0994.**
  - This Author Kit will include instructions on preparation of the hard copy of the extended abstract for the printed Technical Digest and instructions on preparation of the disk for the CD ROM on the Technical Digest.
- September 24, 1999 is the deadline for receipt of the camera-ready extended abstracts by the printer for preparation of the hard copy Technical Digest and for receipt of the disk and 2 camera-ready copies of your paper to the IEDM Conference Office.

  This is a hard deadline. In order to be included in the CD-ROM the author must meet the September 24 deadline.

SLIDE AND VISUALS PREPARATION

- Discuss the importance of how good visuals ensure the success of their presentation. Many slides at the IEDM have too much information, the typeface is too small, the graph lines are too crowded, and the contrast is not high enough. The presentation is lost when the audience cannot read the slides.
- The author kit will have detailed instructions on the production of good slides. It will also include samples of good and bad slides. Tell them to read these carefully and follow the directions.
- Emphasize the use of simple slides; use multiple slides instead of one complicated slide; use sharp contrasts between background and text - white letters on medium blue. Limit the use of black background slides as they darken the room and people can't see.

STUDENT TRAVEL ASSISTANCE

If it is a student author and they ask you questions regarding travel assistance, tell them to contact Phyllis Mahoney with any questions. They will be receiving a letter at the beginning of October with full instructions and the exact amount of available financial support.

附件三

iedm

Suite 400B
101 Lakeforest Boulevard
Gaithersburg, MD 20877
Telephone: 301/527-0900
Facsimile: 301/527-0094

DATE: July 8, 1999

MEMORANDUM TO: Subcommittee Members

FROM: Phyllis Mahoney

SUBJECT: IEDM Abstracts

Enclosed are the abstracts submitted under your subcommittee for your review. Also enclosed is a Paper Rating Information Sheet and a log of the abstracts with the ID#, author name, affiliation and score column. Please use these to assist you in scoring your abstracts.

Be certain to communicate your scores to your Subcommittee Chairman by July 21, 1999. A list of Chairmen is attached.

The August 2 Technical Program Meeting is in Jacksonville, FL. The meeting information was sent to you in May. Please contact me, if you have not received it. If you have not made hotel reservations, call the Radisson Riverwalk Hotel in Jacksonville, FL at 1-904-396-5100 immediately to make a reservation.

1999 IEDM SUBCOMMITTEE CHAIRS

CMOS Devices Chair
Jurriaan Schmitz
Philips Research Labs
Box WAG-01
Prof. Holstlaan 4
Eindhoven, NL-5656 AA
The Netherlands
Phone: 31-40-2742436
Fax: 31-40-2743390
Email: schmitzj@natlab.research.philips.com

CMOS and Interconnect Reliability Chair
Guido Groeseneken
IMEC
Kapeldreef 75
Leuven, B-3001
Belgium
Phone: 32-16-281-269
Fax: 32-16-281-501
Email: groeseneken@imec.be

Detectors, Sensors and Displays Chair
Jim Sturm
Princeton University
Ctr. for Photonic and Opto-
Electronic Materials
J301 Engineering Quad
Princeton, NJ 08544
Phone: 609-258-5610
Fax: 609-258-1954
Email: sturm@ee.princeton.edu

Integrated Circuits and Manufacturing Chair
Shuji Ikeda
Hitachi
SICG - Process Eng. Development
6-16-3 Shinmachi, Ome
Tokyo, 198-8512
Japan
Phone: 81-428-33-2146
Fax: 81-428-33-2175
Email: ikedas@cm.musashi.hitachi.co.jp

Modeling and Simulation Chair
Paul Packan
Intel Corp.
RA1-305
5200 N.E. Elam Young Pkwy
Hillsboro, OR 97124-6497
Phone: 503-613-9869
Fax: 503-613-8950
Email: ppackan@ptdcs2.ra.intel.com

Process Technology
Jeff Gambino
IBM Microelectronics
Zip 33A
Route 52
Hopewell Junction, NY 12533
Phone: 914-892-9040
Fax: 914-892-9068
Email: gambinoj@us.ibm.com

Quantum Electronics and Compound Semiconductors Chair
Leda Lunardi
AT&T Labs
100 Schultz Drive
Room 4-238
Red Bank, NJ 07701-7033
Phone: 732-345-3218
Fax: 732-345-3040
Email: leda@research.att.com

Solid State Devices Chair
Bill Eccleston
University of Liverpool
Dept. of EEE
Liverpool L693BX
United Kingdom
Phone: 44-151-794-4502
Fax: 44-151-794-4540
Email: beccle@liverpool.ac.uk

IEDM
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(OVER)

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