2000 GORDON RESEARCH CONFERENCE

on Nanostructure Fabrication

FINAL PROGRESS REPORT

Office of naval Research
N00014-001-0235

The Gordon Research Conference (GRC) on Nanostructure Fabrication was held at Tilton School, Tilton, New Hampshire, July 23-28, 2000. The conference was well attended with 124 participants (list enclosed). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both US and foreign scientists, senior researchers, young investigators, and students.

In designing the formal speakers program, emphasis was placed on current unpublished research and discussion of the future target areas in this field. There was a conscious effort to stimulate lively discussion about the key issues in the field today. Time for formal presentations was limited in the interest of group discussions. In order that more scientists could communicate their most recent results, poster presentation time was scheduled. In addition to these formal interactions, “free time” was scheduled to allow informal discussions. Such discussions are fostering new collaborations and joint efforts in the field (program enclosed).

I want to personally thank you for your support of this Conference. As you know, in the interest of promoting the presentation of unpublished and frontier-breaking research, Gordon Research Conferences does not permit publication of meeting proceedings. If you wish any further details, please feel free to contact me. Thank you.

Christie Marrian
Conference Chair

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**REPORT DOCUMENTATION PAGE**

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<tr>
<td>Christie Marrian</td>
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<th>19a. NAME OF RESPONSIBLE PERSON</th>
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<td>Carlyle B. Storm, Director</td>
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<th>19b. TELEPHONE NUMBER (include area code)</th>
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Nanostructure Fabrication

July 23-28, 2000
Tilton School
Tilton, New Hampshire

Visit the Conference Home Page for more information.

Topics and Speakers

Nano/Biotechnology
Discussion Leader: Terry Michalske, Sandia National Laboratories
Andy Ellington, University of Texas: Aptazymes as Molecular Switches for Nanoscale Devices
Rich Colton, Naval Research Laboratory: Novel Biosensors based on Force Discrimination between Molecules

Microcontact Printing
Discussion Leader: Fabian Pease, Stanford University
Clivia Sotomayor Torres, University of Wuppertal: Nanoimprint Lithography, Polymer Aspects and Optoelectronic Applications
Grant Willson, University of Texas: Step and Flash Imprint Lithography: A low Cost Alternative for Nanostructure Fabrication
Steve Chou, Princeton University: Advances of Nanoimprint Lithography and Applications

Nanoelectronics
Discussion Leader: Don Tennant, Bell Laboratories, Lucent Technologies

Rafael Kleiman, Lucent Technologies: Exploring the Limits of CMOS Technology with Scanned-Probe Microscopy
Shen Tsai, NEC Fundamental Research Laboratories: Quantum Computing in Nanostructures

Limits in Lithography
Discussion Leader: Scott Mackay, SEMATECH Frances Houle, IBM Almaden Research Center: Chemistry and Physics Controlling Nanoscale Pattern Formation in Polymeric Resists
Alex Liddle, Bell Laboratories, Lucent Technologies: *Fundamental Physics in High-Throughput Projection E-Beam Lithography*
Greg Cardinale, Sandia National Laboratories: *Printing at EUV Wavelengths*

**Molecular Electronics**
Discussion Leader: Paul Campbell, Naval Research Laboratory Phaedon Avouris, IBM T.J. Watson Research Center: *Carbon Nanotube and Silicon Nanoelectronics*
Mark Reed, Yale University: *Is the Future in Plastics?*

**NanoMechanical Systems**
Discussion Leader: Dustin Carr, Bell Laboratories, Lucent Technologies
Lidija Sekaric, Cornell University: *Nanomechanical Resonant Structures in Silicon-based Materials*
Mike Roukes, CalTech: *Nanomechanical Systems: Fabrication, Applications, & Ultimate Limits*
Peter Vettiger, IBM Zurich: *Millipede - A Highly Parallel AFM-based Data Storage System*

**Low Dimensional Structure**
Discussion Leader: Harold Craighead, Cornell University
Horst Stormer, Columbia University: *Things on the Edge*
Don Eigler, IBM Almaden Research Center: *Things in the Middle*

**Magnetic Media and Nanostructures**
Discussion Leader: Dawn Bonnell, University of Pennsylvania Caroline Ross, Massachusetts Institute of Technology: *Magnetic Behavior of Lithographically Patterned Magnetic Arrays*
Bruce Terris, IBM Almaden Research Center: *Patterned Magnetic Media for High Density Storage*
Angela Belcher, University of Texas: *Biologically Mediated Directed Nanocrystal Assembly*

**Plenary Session**
Discussion Leader: Dieter Kern, University of Tuebingen

Theresa Mayer, Pennsylvania State University: *Field Induced Alignment of Nanowires*
Ralph Joerger, University of Uppsala: *Silver Accumulating Bacteria*
Conference Registration List
NANOSTRUCTURE FABRICATION

DAVID ABUSCH-MAGDER
BELL LABORATORIES, LUCENT TECHNOLOGIES
ROOM 2D-316
600 MOUNTAIN AVENUE
MURRAY HILL, NJ 07974
Phone: 908-582-3157
Fax: 908-582-6000
Email: DAVIDAM@BELL-LABS.COM
Participation: Poster Presenter

GORETTY ALONSO-AMIGO
JENOPTIK MIKROTECHNIK GMBH
3447 INVESTMENT BOULEVARD
SUITE 3
HAYWARD, CA 94545
Phone: 510-782-7966
Fax: 510-782-7961
Email: JOUSA@PACBELL.NET
Participation: Poster Presenter

PHAEDON AVOURIS
IBM RESEARCH DIVISION
T J WATSON RESEARCH CENTER, 453
P.O. BOX 218
YORKTOWN HEIGHTS, NY 10598
Phone: 914-945-2722
Fax: 914-945-2141
Email: AVOURIS@WATSON.IBM.COM
Participation: Speaker

GAUTAM BANERJEE
ECHEM INNOVATIONS, INC.
850 SOUTH LONGMORE
SUITE 228
MESA, AZ 85202
Phone: 480-649-8347
Fax: 480-835-6691
Email: ECHEM_INNOVATION@HOTMAIL.COM
Participation: Poster Presenter

ANGELA M BELCHER
UNIVERSITY OF TEXAS AT AUSTIN
DEPARTMENT OF CHEMISTRY & BIOCHEMISTRY
THE TEXAS MATERIALS INSTITUTE
AUSTIN, TX 78712
Phone: 512-471-1154
Fax: 512-471-1400
Email: BELCHER@MAIL.UTEXAS.EDU
Participation: Speaker

GEORGES BELFORT
RENSSELAER POLYTECHNIC INSTITUTE
HOWARD P ISERMANN, DEPT OF CHEM ENG
RICKETTS BLDG 210A
TROY, NY 12180-3590
Phone: 518-276-6948
Fax: 518-276-4030
Email: belfog@rpi.edu
Participation: Attendee

GRACIELA B BLANCHET
DUPONT, CENTRAL RESEARCH EXPERIMENTAL STATION, E356/284
WILMINGTON, DE 19880
Phone: 302-695-8687
Fax: 302-695-8120
Email: GRACIELA.B.BLANCHET@USA.DUPONT.COM
Participation: Attendee

DAWN A BONNELL
UNIVERSITY OF PENNSYLVANIA
DEPARTMENT OF MATERIALS SCIENCE & ENGINEERING
3231 WALNUT STREET
PHILADELPHIA, PA 19104
Phone: 215-898-6231
Fax: 215-573-2128
Email: BONNELL@LRSM.UPENN.EDU
Participation: Attendee

DAVID R BOWLER
UNIVERSITY COLLEGE LONDON
DEPARTMENT OF PHYSICS & ASTRONOMY
GOWER STREET
LONDON, WC1E 6BT UNITED KINGDOM
Phone: 44-020-7679350
Fax: 44-020-7679136
Email: DAVID.BOWLER@UCL.AC.UK
Participation: Poster Presenter
JURGEN BRUGGER  
UNIVERSITY OF TWENTE  
MESA RESEARCH INSTITUTE  
PO BOX 217  
ENSCHENDE, 7500 AE NETHERLANDS  

COLIN A BULTHAUP  
MASSACHUSSETS INSTITUTE OF TECHNOLOGY  
MEDIA LAB, NANOMEDIA  
E15-422  
20 AMES STREET  
CAMBRIDGE, MA 02116

NANCY A BURNHAM  
WORCESTER POLYTECNIC INSTITUTE  
PHYSICS DEPARTMENT  
100 INSTITUTE ROAD  
WORCESTER, MA 01609-2280

MARIO CABODI  
CORNELL UNIVERSITY  
DEPARTMENT OF APPLIED PHYSICS  
G7 CLARK HALL  
ITHACA, NY 14853

PAUL M CAMPBELL  
NAVAL RESEARCH LABORATORY  
CODE 6863  
4555 OVERLOOK AVENUE SW  
WASHINGTON, DC 20375

GREGORY F CARDINALE  
SANDIA NATIONAL LABORATORIES  
7011 EAST AVENUE  
MS 9409  
LIVERMORE, CA 94550

DUSTIN W CARR  
LUCENT TECHNOLOGIES  
BELL LABORATORIES  
700 MOUNTAIN AVENUE 1D-230  
MURRAY HILL, NJ 07974

OLIVIA M CASTELLINI  
UNIVERSITY OF WISCONSIN - MADISON  
1150 UNIVERSITY AVENUE  
MADISON, WI 53706

MICHAEL L CHABINYC  
HARVARD UNIVERSITY  
12 OXFORD STREET BOX 15  
CAMBRIDGE, MA 02138

REBECCA M CHEUNG  
UNIVERSITY OF EDINBURGH  
DEPT OF EEE  
KING'S BUILDINGS  
EDINBURGH, SCOTLAND UNITED KINGDOM  

Phone:  
Fax:  
Email: J.P.BRUGGER@EL.UTWENTE.NL  
Participation: Poster Presenter

Phone: 617-253-0988  
Fax: 617-258-6264  
Email: MOBIUS@MIT.EDU  
Participation: Poster Presenter

Phone:  
Fax:  
Email: NAB@WPI.EDU  
Participation: Attendee

Phone: 607-255-6286  
Fax:  
Email: MC131@CORNELL.EDU  
Participation: Attendee

Phone: 202-767-3414  
Fax: 202-767-4290  
Email: CAMPBELL@BLOCH.NRL.NAVY.MIL  
Participation: Poster Presenter

Phone: 925-294-1506  
Fax: 925-294-3870  
Email: GFCARDI@SANDIA.GOV  
Participation: Speaker

Phone: 908-582-3105  
Fax: 908-582-3260  
Email:  
Participation: Speaker

Phone: 608-283-4476  
Fax: 608-265-2334  
Email: OMCASTELLINI@STUDENTS.WISC.EDU  
Participation: Attendee

Phone: 617-495-9436  
Fax: 617-495-2500  
Email: CHABINYC@FAS.HARVARD.EDU  
Participation: Attendee

Phone: 44-131-650-5749  
Fax: 44-131-650-6554  
Email: r.cheung@ee.ed.ac.uk  
Participation: Poster Presenter
STEVEN Y CHOU
PRINCETON UNIVERSITY
DEPT. OF ELECTRICAL ENGINEERING
PRINCETON, NJ 08544

PETER CHRISTOPHILIEMK
HENKAL KGAA
RESEARCH SOLIDS/ADVANCED MATERIALS
DUSSSELDORF, D 40191 GERMANY

JOHN CLEMMENS
UNIVERSITY OF WASHINGTON
BOX 352125
SEATTLE, WA 98195

SIDNEY R COHEN
WEIZMANN INSTITUTE OF SCIENCE
PERLMAN BLDG., POB 26
REHOVOT, 76100 ISRAEL

ROBERT W COHN
UNIVERSITY OF LOUISVILLE
THE ELECTROOPTICS RESEARCH INSTITUTE
LUTZ HALL, ROOM 442
BROOK AND WARNock
LOUISVILLE, KY 40292

RICHARD J COLTON
NAVAL RESEARCH LABORATORY
CODE 6170
4555 OVERLOOK AVENUE SE
WASHINGTON, DC 20375-5342

EMILY COOPER
MIT MEDIA LABORATORY
20 AMES STREET, E15-320F
CAMBRIDGE, MA 02139-4307

HAROLD CRAIGHED
CORNELL UNIVERSITY
APPLIED & ENGINEERING PHYSICS DEPT
211 CLARK HALL
ITHACA, NY 14853

FRANK DIRNE
PHILIPS RESEARCH LABORATORIES
PROF. HOLSTLAAN 4
EINDHOVEN, 5656 AA THE NETHERLANDS

JAROSLAW DRELIICH
MICHIGAN TECHNOLOGICAL UNIVERSITY
DEPARTMENT OF METALL. MATERIALS ENG.
1400 TOWNSEND DRIVE
HOUGHTON, MI 49931

Phone: 609-258-4416
Fax: 609-258-8279
Email: CHOU@ECE.UMN.EDU
 Participation: Speaker

Phone: 49-211-797-7294
Fax: 49-211-798-2235
Email: PETER.CHRIStOPHERILEM@HENKEL.DE
 Participation: Attendee

Phone: 206-685-4432
Fax: 206-685-4434
Email: JCLEMMEN@U.WASHINGTON.EDU
 Participation: Poster Presenter

Phone: 972-8-934-2703
Fax: 972-8-934-4137
Email: SIDNEY.COHEN@WEIZMANN.AC.IL
 Participation: Poster Presenter

Phone: 502-852-7077
Fax: 502-852-1577
Email: RWCOHN@LOUISVILLE.EDU
 Participation: Poster Presenter

Phone: 202-767-0801
Fax: 202-767-3321
Email: RCOLTON@STM2.NRL.NAVY.MIL
 Participation: Speaker

Phone: 607-255-8707
Fax: 607-255-7658
Email: HGC1@CORNELL.EDU
 Participation: Speaker

Phone: 31-40-27-42627
Fax: 31-40-27-44769
Email: FRANK.DIRNE@PHILIPS.COM
 Participation: Poster Presenter

Phone: 906-487-2932
Fax: 906-487-2934
Email: JWCRELICH@MTU.EDU
 Participation: Attendee
JOCHEN DRESSEN
VDI- TECHNOLOGY CENTER
PO BOX 10 11 39
SUSSER DORF, 40239 GERMANY

WALTER J DRESSICK
NAVAL RESEARCH LAB
CODE 6950
4555 OVERLOOK AVENUE, SW
WASHINGTON, DC 20375

RAYMOND F EGERTON
PORTLAND STATE UNIVERSITY
PHYSICS DEPARTMENT
PORTLAND, OR 97207-0751

DONALD M EIGLER
IBM ALMADEN RESEARCH CENTER
650 HARRY ROAD
SAN JOSE, CA 95120

ANDREW D ELLINGTON
UNIVERSITY OF TEXAS AT AUSTIN
DEPARTMENT OF CHEMISTRY
ICMB A-4800
26TH AND SPEEDWAY
AUSTIN, TX 78712

GEORG S FRITZ
UNIVERSITY OF TUEBINGEN
INSTITUTE OF APPLIED PHYSICS
AUF DER MORGENTHELLE 10
TUEBINGEN, D-72076 GERMANY

MIKE FRITZE
MIT LINCOLN LABS
ROOM L-212
244 WOOD STREET
LEXINGTON, MA 02420-9108

SAWYER FULLER
MIT MEDIA LAB
20 AMES STREET
ROOM E15-015
CAMBRIDGE, MA 02139

GREGG M GALLATIN
LUCENT, BELL LABS
ROOM 1D402
600 MOUNTAIN AVENUE
MURRAY HILL, NJ 07974-0536

STEVEN M GEORGE
UNIVERSITY OF COLORADO
DEPARTMENT OF CHEMISTRY
CAMPUS BOX 215
BOULDER, CO 80309

Phone: 49-2116214580
Fax: 49-2116214484
Email: DRESSEN@VDI.DE
Participation: Attendee

Phone: 202-404-6059
Fax: 202-767-9594
Email: WJD@CBMSE.NRL.NAVY.MIL
Participation: Attendee

Phone: 503-725-4227
Fax: 503-725-3888
Email: EGERTON@PDX.EDU
Participation: Poster Presenter

Phone: 408-927-2172
Fax: 408-927-2510
Email: EIGLER@ALMADEN.IBM.COM
Participation: Speaker

Phone: 512-232-3424
Fax: 512-471-7014
Email: ANDY.ELLINGTON@MAIL.UTEXAS.EDU
Participation: Speaker

Phone: 49-7071-2976339
Fax: 49-7071-295400
Email: GEORG- STEFAN.FRITZ@UNI-
TUEBINGEN.DE
Participation: Poster Presenter

Phone: 781-981-2626
Fax: 781-981-7889
Email: MFRTIZE@LL. MIT.EDU
Participation: Poster Presenter

Phone: 617 253 0988
Fax: 
Email: 
Participation: Attendee

Phone: 908-582-4125
Fax: 908-582-2300
Email: GALLATIN@LUCENT.COM
Participation: Poster Presenter

Phone: 303-492-3398
Fax: 303-492-5894
Email: GEORGES@SPOT.COLORADO.EDU
Participation: Poster Presenter
WOLFGANG GEYER
UNIVERSITÄT HEIDELBERG
ANGEW PHYS CHEMIE
IM NEUENHEIMER FELD 253
HEIDELBERG, 69120 GERMANY

SAUL T GRIFFITH
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
MEDIA LOB.
20 AMES STREET
CAMBRIDGE, MA 02139

FRANZISKA GROEHN
NIST
POLYMERS DIVISION
100 BUREAU DRIVE, STOP 8642
GAINESBURG, MD 20899-8542

DANIEL E GRUPP
STANFORD UNIVERSITY
CISX BUILDING
STANFORD, CA 94305

MICHAEL A GUILLORN
UNIVERSITY OF TENNESSEE, KNOXVILLE/ORNL
OAK RIDGE NATIONAL LABORATORY
PO BOX 2008
MS 6006
OAK RIDGE, TN 37831-6006

LEONID GUREVICH
DELT UNIVERSITY OF TECHNOLOGY
PO BOX 5046
DELT, 2600GA NETHERLANDS

MARTIN GUTHOLD
UNIVERSITY OF NORTH CAROLINA
DEPTS. OF PHYSICS & COMPUTER SCIENCE
PHILLIPS 110, CB 3255
CHAPEL HILL, NC 27599

JONGYOUN HAN
CORNELL UNIVERSITY
212 CLARK HALL
ITHACA, NY 14853

DAVID E HARWELL
UNIVERSITY OF HAWAI'I
HAWAIIAN ADVANCED NANOTECHNOLOGY ALLIANCE
DEPARTMENT OF CHEMISTRY
2545 THE MALL
HONOLULU, HI 96822

THORSTEN HESJEDAL
STANFORD UNIVERSITY
CIS-X 324
VIA ORTEGA
STANFORD, CA 94305-4075

Phone: 49-6221-54-493
Fax: 49-6221-54-619
Email: WOLFGANG.GEYER@URZ.UNI-HEIDELBERG.DE
Participation: Poster Presenter

Phone: 617-253-5554
Fax: 617-256264
Email: SAUL@MEDIA.MIT.EDU
Participation: Poster Presenter

Phone: 301-975-3586
Fax:
Email:
Participation: Attendee

Phone: 650-724-6911
Fax: 520-962-4754
Email: grupp@stanford.edu
Participation: Poster Presenter

Phone: 865-574-8588
Fax: 865-576-2813
Email: GUILLORN@ICSUN1.IC.ORN.L.GOV
Participation: Poster Presenter

Phone:
Fax:
Email: GUREVICH@QT.TN.TUDELT.NL
Participation: Attendee

Phone: 919-962-3526
Fax: 919-962-0480
Email: GUTHOLD@CS.UNC.EUD
Participation: Poster Presenter

Phone: 607-255-6286
Fax: 607-255-7658
Email: JH97@CORNELL.EDU
Participation: Poster Presenter

Phone: 808-956-5586
Fax: 808-956-5908
Email: HARWELL@HAWAII.EDU
Participation: Attendee

Phone: 650-723-7537
Fax: 650-723-4659
Email: THORSTEN@SNOW.STANFORD.EDU
Participation: Attendee
SAW W HLA
PAUL DRUDE INSTITUT FOR SOLID STATE ELECTRONICS
FB PHYSIK
FREIE UNIVERSITAT BERLIN
ARNIMALLEE 14
BERLIN, D-14195 GERMANY

FRANCES A HOULE
IBM ALMADEN RESEARCH CENTER
650 HARRY ROAD, M/S D1
SAN JOSE, CA 95120

PAUL HYMAN
TUFTS UNIVERSITY
MOLECULAR BIOLOGY AND MICROBIOLOGY
136 HARRISON AVENUE
BOSTON, MA 02111

JOSEPH M JACOBSON
MIT MEDIA LABORATORY
20 AMES STREET
E15-435
CAMBRIDGE, MA 02139

CONRAD D JAMES
CORNELL UNIVERSITY
212 CLARK HALL
ITHACA, NY 14853

RALPH JOERGER
ANGSTROMLABORATORIET INSTITUTE
HUS 4 VAN2, RUM 4243
LAGERHYDDSVAGEN 1
BOX 534
UPPSALA, 751023 SWEDEN

G.A.C. JONES
UNIVERSITY OF CAMBRIDGE
CAVENDISH LABORATORY
MADINELY ROAD
CAMBRIDGE, CB1 0HE UNITED KINGDOM

SEREF KALEM
TUBITAK-UEKAE
PO BOX 21
INSTITUTE OF ELECTRONICS
GEBZE, KOCAEI, 41470 TURKEY

DIETER P KERN
UNIVERSITAET TUEBINGEN
INSTITUT FUER ANGEWANDTE PHYSIK
AUF DER MORGEN STELLE 10
TUEBINGEN, D-72076 GERMANY

GAVIN M KING
DARTMOUTH COLLEGE
DEPARTMENT OF PHYSICS AND ASTRONOMY
6127 WILDER LABORATORY
HANOVER, NH 03755

Phone: 49 30 838 52813
Fax: 49 30 831 1355
Email: hlas@physik.fu-berlin.de
Participation: Poster Presenter

Phone: 408-927-2420
Fax: 408-927-2510
Email: HOULE@ALMADEN.IBM.COM
Participation: Monitor

Phone: 617-636-6754
Fax: 617-636-0337
Email: PHYMAN01@EMERALD.TUFTS.EDU
Participation: Poster Presenter

Phone: 617-253-0905
Fax: 617-258-6264
Email: JACOBSON@MEDIA.MIT.EDU
Participation: Attendee

Phone: 607-255-6286
Fax: 607-255-7658
Email: CDJ5@CORNELL.EDU
Participation: Poster Presenter

Phone: 44-1223-337484
Fax: 44-1223-337271
Email: GAJ1@CAM.AC.UK
Participation: Speaker

Phone: 90-262-641-2300-3167
Fax: 90-262-641-2309
Email: KALEM@MAM.GOV.TR
Participation: Poster Presenter

Phone: 49-7071-29-72999
Fax: 49-7071-29-5400
Email: DIETER.KERN@UNI-TUEBINGEN.DE
Participation: Vice Chair

Phone: 603-646-2720
Fax: 603-646-1446
Email: GMK@DARTMOUTH.EDU
Participation: Poster Presenter
WHYE-KEI LYE
UNIVERSITY OF VIRGINIA
DEPARTMENT OF ELECTRICAL ENGINEERING
351 MCCORMICK ROAD
CHARLOTTESVILLE, VA 22903

R. SCOTT MACKAY
INTERNATIONAL SEMATECH
2706 MONTOPOLIS DRIVE
AUSTIN, TX 78741

ROBERT MAGERLE
UNIVERSITAET BAYREUTH
PHYSIKALISCHE CHEMIE II
BAYREUTH, 95440 GERMANY

DAVID MARGOLESE
MATERIALS RESEARCH SOURCE
2265 EAST FOOTHILL BOULEVARD
PASADENA, CA 91107

CHRISTIE R MARRIAN
DARPA/ETO
3701 NORTH FAIRFAX DRIVE
ARLINGTON, VA 22203

HIROSHI MATSUI
UNIVERSITY OF CENTRAL FLORIDA
DEPARTMENT OF CHEMISTRY
4000 CENTRAL FLORIDA BOULEVARD
ORLANDO, FL 32816-2366

STEFAN MAUPAI
UNIVERSITY OF ERLangen
INSTITUTE FOR CORROSION AND SURFACE TECHNOLOGY
MARTENSSTR. 7
ERLANGEN, 91058 GERMANY

THERESA S MAYER
PENN STATE UNIVERSITY
DEPARTMENT OF ELECTRICAL ENGINEERING
111K ELECTRICAL ENGINEERING WEST
UNIVERSITY PARK, PA 16802

TERRY A MICHALSKE
SANDIA NATIONAL LABORATORIES
SURFACE AND INTERFACE SCIENCES
PO BOX 5800, MAIL STOP 1413
ALBUQUERQUE, NM 87185-1413

JOSEPH G MICHELS
PRINCETON UNIVERSITY
70 PROSPECT AVENUE
PRINCETON, NJ 08540

Phone: 804-982-2374
Fax: 804-924-8818
Email: WKLYE@VIRGINIA.EDU
Participation: Poster Presenter

Phone: 512-356-3617
Fax: 512-356-3618
Email: SCOTT.MACKAY@SEMATECH.ORG
Participation: Attendee

Phone: 49-921-55-2641
Fax: 49-921-55-2059
Email: ROBERT.MAGERLE@UNI-BAYREUTH.DE
Participation: Poster Presenter

Phone: 626-449-2408
Fax: 626-449-2176
Email: MRSLLC@EARTHLINK.NET
Participation: Attendee

Phone: 703-696-2213
Fax: 703-696-2206
Email: CMARRIAN@DARPA.MIL
Participation: Chair

Phone: 407-823-1029
Fax: 407-823-2252
Email: HMATSUI@PEGASUS.CC.UCF.EDU
Participation: Poster Presenter

Phone: 49-9131-852759
Fax: 49-9131-852758
Email: MAUPAI@CPF02WWW4.WW.UNI-ERLANGEN.DE
Participation: Poster Presenter

Phone: 814-863-8458
Fax: 814-865-7065
Email: TSM2@EMAIL.PSU.EDU
Participation: Speaker

Phone: 505-844-5829
Fax: 505-844-5470
Email: TAM/CHA@SOMNET.SANDIA.GOV
Participation: Speaker

Phone: 609-258-1717
Fax: 609-258-1177
Email: JMICHELS@PRINCETON.EDU
Participation: Attendee
VLADIMIR MORDKOVICEH  
ICMR  
EAST 601 KSP  
SAKADO 3-2-1  
TAKATSU-KU  
KWASAKI, 213-0012 JAPAN

Phone: 81-44-813-7830  
Fax: 81-44-813-7233  
Email: VLADIMIR@ICMR.CO.JP  
Participation: Poster Presenter

DAVID J NICHOLLS  
US AIR FORCE  
SAF/AQL  
1060 AIR FORCE PENTAGON  
WASHINGTON, DC 20301

Phone: 703-607-3862  
Fax: 703-698-9570  
Email: NICHOLLS1@EARTHLINK.NET  
Participation: Attendee

GEoffy NUNES  
DARTMOUTH COLLEGE  
DEPT OF PHYSICS & ASTRONOMY  
6127 WILDER LAB  
HANOVER, NH 03755

Phone: 603-646-2962  
Fax: 603-646-1446  
Email: GNUNES@DARTMOUTH.EDU  
Participation: Poster Presenter

ANATOLI OLOKHOVETS  
CORNELL UNIVERSITY  
G-7 CLARK HALL  
ITHACA, NY 14853

Phone: 607-255-6286  
Fax: 607-255-7658  
Email: AGO2@CORNELL.EDU  
Participation: Attendee

R. FABIAN PEASE  
STANFORD UNIVERSITY  
DEPARTMENT OF ELECTRICAL ENGINEERING  
CISX 314  
STANFORD, CA 94305-4055

Phone: 650-723-0950  
Fax: 650-723-4659  
Email: PEASE@CIS.STANFORD.EDU  
Participation: Discussion Leader

DAVID J PENA  
PENN STATE UNIVERSITY  
152 DAVEY LAB  
BOX 61  
UNIVERSITY PARK, PA 16802

Phone: 814-863-8038  
Fax: 814-865-1924  
Email: DJP13@PSU.EDU  
Participation: Poster Presenter

F. KEITH PERKINS  
NAVAL RESEARCH LABORATORY  
CODE 6863  
4555 OVERLOOK AVENUE  
WASHINGTON, DC 20375

Phone: 202-767-3971  
Fax: 202-767-4290  
Email: PERKINS@EST.R.NAVY.MIL  
Participation: Poster Presenter

TOM PETERSEN  
LUCENT TECHNOLOGIES- BELL LABS  
1 NOB HILL COURT  
SETAUKET, NY 11733

Phone: 908-582-2413  
Fax:  
Email: PETERSEN@PRINCETON.EDU  
Participation: Attendee

BRUNO PIGNATARO  
UNIVERSITA DEGLI STUDI D  
DIPARTIMENTO DI SCIENZE CHIMICHE  
CATANIA, V. LE A. DORIA 6  
CATANIA, 95126 ITALY

Phone: 390957139148  
Fax:  
Email: BPIGNATARO@DIPCHI.UNICT.IT  
Participation: Poster Presenter

MARK A REED  
YALE UNIVERSITY  
CNTR MICROMOLECULAR MATERIAL & STRUCTURE  
P.O. BOX 205284  
NEW HAVEN, CT 06520-8284

Phone: 203-432-4300  
Fax: 203-432-6420  
Email: MARK.REED@YALE.EDU  
Participation: Speaker
BRIAN D REISS  
Pennsylvania State University  
152 Davey Laboratory  
Mailbox #67  
University Park, PA 16802  

Phone: 814-863-9556  
Fax: 814-865-3314  
Email: BDR2@PSU.EDU  
Participation: Poster Presenter  

RON RENDELL  
Naval Research Laboratory  
Code 6813  
Washington, DC 20375  

Phone: 202-404-8478  
Fax: 202-404-7194  
Email: RENDELL@ESTD.NRL.NAVY.MIL  
Participation: Poster Presenter  

BRENT RIDLEY  
MIT Media Lab  
20 Ames Street  
Room 429  
Cambridge, MA 02139  

Phone: 617-253-5554  
Fax: 617-258-6264  
Email: RIDLEY@MEDIA.MIT.EDU  
Participation: Poster Presenter  

CAROLINE ROSS  
MIT  
Dept of Materials Science & Engineering  
Room 13-4004, 77 Massachusetts Avenue  
Cambridge, MA 02139  

Phone: 617-258-0223  
Fax: 617-258-0223  
Email: CAROSS@MIT.EDU  
Participation: Speaker  

MICHAEL L ROUKES  
Caltech  
Condensed Matter Physics  
MS 114-36  
Pasadena, CA 91125  

Phone: 626-395-2916  
Fax: 626-395-2916  
Email: ROUKES@CALTECH.EDU  
Participation: Speaker  

KRESIMIR RUPNIK  
Louisiana State University  
Department of Chemistry  
Baton Rouge, LA 70803  

Phone: 225-916-1353  
Fax: 225-399-3458  
Email: CHRUPN@LSU.EDU  
Participation: Poster Presenter  

ZIVILE R RUTKUNIENE  
Kaunas University of Technology  
Department of Physics  
Studentu St. 50  
Kaunas, LT-3031 Lithuania  

Phone: 370-7-300-341  
Fax: 370-7-350-737  
Email: ZIRUT@FMF.KTU.LT  
Participation: Poster Presenter  

LIDJIA SEKARIC  
Cornell University  
Department of Applied Physics  
212 Clark Hall  
Ithaca, NY 14853  

Phone: 607-255-6286  
Fax: 607-255-7658  
Email: LS63@CORNELL.EDU  
Participation: Speaker  

JAMES R SHEATS  
Rolltronic Corp.  
1010 El Camino Real  
Suite 300  
Menlo Park, CA 94025  

Phone: 650-566-8471  
Fax: 408-734-9620  
Email: SHEATS@ROLLTRONICS.COM  
Participation: Attendee  

WALTER SMITH  
Haverford College  
370 Lancaster Avenue  
Stokes Hall, Room 116A  
Haverford, PA 19041-1392  

Phone: 610-896-1332  
Fax: 610-896-4904  
Email: WSMITH@HAVERFORD.EDU  
Participation: Poster Presenter
MASSIMO TORMEN  
UNIVERSITY OF WUERZBURG  
PHYSICAL INSTITUTE  
AM HUBLAND  
WUERZBURG, 97074 GERMANY

J S TSAI  
NEC FUNDAMENTAL RESEARCH LABS.  
34 MIYUKIGAKOA  
TSUKUBA, 305 JAPAN

ANDREA TURNER  
CORNELL UNIVERSITY  
G6 CLARK HALL  
ITHACA, NY 14853

STEPHEN W TURNER  
CORNELL UNIVERSITY  
ROOM G6 CLARK HALL  
ITHACA, NY 14850

JOHN A VENABLES  
ARIZONA STATE UNIVERSITY  
DEPARTMENT OF PHYSICS & ASTRONOMY  
TEMPE, AZ 85287-1504

PETER VETTIGER  
IBM CORPORATION  
RESEARCH DIVISION  
SAUMERSTRASSE 4  
RUSCHLIKON, CH-9903 SWITZERLAND

MARLON L WALKER  
OFFICE OF NAVAL RESEARCH  
BALLSTON CENTRETOWER ONE  
800 NORTH QUINCY STREET  
ARLINGTON, VT 22217-5660

FREDERICK T WALLENBERGER  
PPG INDUSTRIES  
FIBERGLASS RESEARCH, GLASS TECH CENTER  
P.O. BOX 2844  
PITTSBURGH, PA 15230-2844

BOB WESTERVELT  
HARVARD UNIVERSITY  
9 OXFORD STREET  
CAMBRIDGE, MA 02138

ERIC J WILHELM  
MIT MEDIA GROUP  
20 AMES STREET  
BUILDING E15-015  
CAMBRIDGE, MA 02139

Phone: 49-931-8885876  
Fax: 49-931-8885142  
Email: TORMEN@PHYSIK.UNI-WUERZBURG.DE  
Participation: Poster Presenter

Phone: 81-298-50-1161  
Fax: 81-298-56-6139  
Email: TSAI@QWAVE.CL.NEC.CO.JP  
Participation: Speaker

Phone: 607-255-6286  
Fax: 607-255-7658  
Email: AMP24@CORNELL.EDU  
Participation: Poster Presenter

Phone: 607-255-6286  
Fax: 607-255-7658  
Email: ST37@CORNELL.EDU  
Participation: Poster Presenter

Phone: 602-965-1675  
Fax:  
Email: JOHN.VENABLES@ASU.EDU  
Participation: Poster Presenter

Phone:  
Fax:  
Email: PV@ZURICH.IBM.COM  
Participation: Speaker

Phone: 703-696-1938  
Fax: 703-696-6887  
Email: WALKERM@ONR.NAVY.MIL  
Participation: Attendee

Phone: 412-820-4948  
Fax: 412-820-4952  
Email: WALLENBERGER@PPG.COM  
Participation: Attendee

Phone: 617 495 3296  
Fax: 617 495 9837  
Email: westervelt@deas.harvard.edu  
Participation: Attendee

Phone: 617 253 0988  
Fax:  
Email:  
Participation: Attendee
JOHN G WILLIAMS  
LI-COR, INC.  
4308 PROGRESSIVE AVENUE  
LINCOLN, NE 68504

GRANT WILLSON  
UNIVERSITY OF TEXAS  
DEPARTMENT OF CHEMICAL ENGINEERING  
AUSTIN, TX 78712

GUOHUA YANG  
WAYNE STATE UNIVERSITY  
75 DEPARTMENT OF CHEMISTRY  
5101 CASS AVE.  
DETROIT, MI 48202

MAXIM ZALALUTDINOV  
CORNELL UNIVERSITY  
CLARK HALL, D-3  
PHYSICS DEPARTMENT  
ITHACA, NY 14853

MIN ZHENG  
CMRA, UNIVERSITY OF NEBRASKA  
304 BRACE LAB  
LINCOLN, NE 68588

Phone: 402-467-0714  
Fax: 402-467-0819  
Email: JWILLIAMS@BIO.LICOR.COM  
Participation: Attendee

Phone: 512-471-7222  
Fax: 512-471-4342  
Email: WILLSON@CHE.UTEXAS.EDU  
Participation: Speaker

Phone: 313-577-0482  
Fax: 313-577-6822  
Email: GYANG@SUN.SCIENCE.WAYNE.EDU  
Participation: Poster Presenter

Phone: 607-255-6286  
Fax: 607-255-7658  
Email: MAXIM@CCMR.CORNELL.EDU  
Participation: Attendee

Phone: 402-472-5385  
Fax: 402-472-2879  
Email: MZHENG@UNLSERVE.UNL.EDU  
Participation: Poster Presenter