

# SCHEDULE OF EVENTS

## 2001 IEEE RADAR CONFERENCE

### ***Monday, April 30, 2001***

- 1800 - 2000    **Social/Registration**
- 1830 - 2130    **Pre-Conference Tutorial -- Radar Basics**  
*J. A. Scheer and W. A. Holm*

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### ***Tuesday, May 1, 2001***

- 0700            **Registration Opens**
- 0730            **Poster 1 Set-Up**
- 0800 - 0810    **Introduction**
- 0810 - 0840    **Keynote Address**  
*Brig. Gen. Paul Nielsen, Commander, Air Force Research Laboratory*

#### **Session 1: Radar Systems**

*Co-Chairs:            Dr. Marshall Greenspan (Northrop Grumman)*  
*Mr. Dennis Mukai (Air Force Research Laboratory/SN)*

- 0845 - 0905    **Enhancements of NP-3 UHF Image Quality Using Digital Spotlighting Technique**  
*Roger R-Y. Lee, James S. Verdi (Naval Air Warfare Center)*  
*and Mehrdad Soumekh (State University of New York - Buffalo)*
- 0905 - 0925    **Dual-Use Shipborne Phased Array Radar Technology and Tactical Environmental Sensing,**  
*Timothy Maese, James Melody, Sheldon Katz, Matthew Olster,*  
*Wayne Sabin, Abraham Freedman and Henry Owen (Lockheed Martin)*
- 0925 - 0945    **Test Results from The AN/APY-6 SAR/GMTI Surveillance, Tracking and Targeting Radar**  
*Larry Gross (Northrop Grumman)*
- 0945 - 1005    **Dominant Scatterer Identification Testing with Integrated X-Band Radar Systems**  
*Bill Ballard, Carl Darron, Lamar Gostin, Brian Hudson, Jeff Kemp,*  
*Jim Scheer and Greg Showman (Georgia Tech Research Institute)*
- 1005 - 1020    **Poster 1 Overview**  
*Co-Chairs: Dr. Marshall Greenspan (Northrop Grumman)*  
*Dr. Mark Davis (Air Force Research Laboratory/SN)*

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## 2001 IEEE RADAR CONFERENCE

1020 - 1030 Break

1030 - 1100 **Poster 1: Radar Systems, Emerging Technology**

**Netted Radar Sensing**

*A. L. Hume and C. J. Baker (DERA)*

**The Spectrum of a Digital Radio Frequency Memory Linear Range Gate Stealer Electronic Attack Signal**

*Scott D. Berger and Aaron J. Aubrecht (Air Force Research Laboratory)*

**A Spectral Approach to Image-Enhanced Moving Target Radar Detection**

*Robert J. Bonneau (Air Force Research Laboratory)*

**Development of a Complete Radar System Model**

*Iain Scott (BAE Systems Avionics Ltd.)*

**Bistatic Radar Denial/Embedded Communications Via Waveform Diversity**

*Paul Antonik, Robert J. Bonneau, Donald D. Weiner,  
and Michael C. Wicks (Air Force Research Laboratory)*

**Radar Imaging of Moving Targets in Foliage Using Polarimetric Multi-Frequency Antenna Array SAR**

*Genyuan Wang, Xiang-Gen Xia (University of Delaware)  
and Victor C. Chen (Naval Research Laboratory)*

**Resampling and Clutter Tuning for Bistatic Clutter Rejection**

*Michael J. Callahan, John E. Maher, Michael C. Wicks,  
E. Douglas Lynch, Mark E. Davis (Air Force Research Laboratory)  
and Richard A. Schneible (Stiefvater Consultants)*

**Session 2: Emerging Technology**

*Co-Chairs: Dr. Mark Davis (Air Force Research Laboratory/SN)  
Mr. Lee Moyer (Defense Advanced Research Projects Agency)*

1100 - 1120 **SAR Image Processing for Moving Target Focusing**

*Jen King Jao (Massachusetts Institute of Technology-Lincoln Laboratory)*

1120 - 1140 **SAR Images of Targets Obtained Using Time-Modulated Ultra-Wide Band Through-Wall Penetration Radar**

*Soumya Nag, Mark Barnes and Herb Fluhler (Time Domain Corporation)*

1140 - 1200 **An Adaptive Algorithm for Enhanced Target Detection for Bistatic Space-Based Radar**

*Candace E. Clary and John C. McIntosh (Intellectual Properties, Inc.)*

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## 2001 IEEE RADAR CONFERENCE

**1200 - 1220 Bistatic Surveillance Concept of Operations**

*Michael P. Hartnett (Emergent) and Mark E. Davis  
(Air Force Research Laboratory)*

**1230 - 1340 Lunch**

**1230 Poster 1 Tear-Down/Poster 2 Set-Up**

**Session 3: Signal Processing**

*Co-Chairs: Dr. Dale Ausherman (Veridian/ERIM)  
Dr. Mike Wicks (Air Force Research Laboratory/SN)*

**1340 - 1400 Ship detection in SAR images: A Segmentation Based Technique**

*Massimo Sciotti and Pierfrancesco Lombardo  
(University of Rome "La Sapienza")*

**1400 - 1420 Effects of Various Image Enhancement Techniques on FOPEN Data**

*Les Novak (Massachusetts Institute of Technology-Lincoln Laboratory)*

**1420 - 1440 Train of Diverse Multifrequency Radar Pulses**

*Nadav Levanon (Tel Aviv University)*

**1440 - 1500 New Techniques for Radar Coherent Range Ambiguity Resolution**

*F. C. Lin and M. Steiner (Naval Research Laboratory)*

**1500 - 1520 Optimal Waveforms and Processing for Sparse Frequency UWB Operation**

*Joseph Salzman, Donald Akamine, Russell Lefevre, Donald Woods (Technology Service Corporation) and John Kirk, Jr. (Goleta Engineering)*

**1520 - 1540 Poster 2 Overview**

*Co-Chairs: Dr. Marvin Cohen (Georgia Tech Research Institute)  
Dr. Braham Himed (Air Force Research Laboratory/SN)  
Mr. Jim Fritsch (Northrop Grumman)*

**1540 - 1550 Break**

**1550 - 1620 Poster 2: Signal Processing, Subsystem Technology**

**Ambiguity Analysis for Pulse Compression Radar Using Gold Code Sequences**

*Todd B. Hale and Michael A. Temple (Air Force Institute of Technology)*

**Interrupted Synthetic Aperture Radar**

*Joseph Salzman, Russell Lefevre (Technology Service Corporation)  
and John Kirk, Jr. (Goleta Engineering)*

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### **Optimal Transmission Pulse Shape for Detection and Identification with Uncertain Target Aspect**

*David A. Garren, Michael K. Osborn, Anne C. Odom, J. Scott Goldstein (Science Applications International Corporation), S. Unnikrishna Pillai (Polytechnic University) and Joseph R. Guerci (Defense Advanced Research Projects Agency)*

### **A Multi-Step Selection Procedure for Estimating the Number of Signal Components**

*Pinyuen Chen, Michael C. Wicks (Air Force Research Laboratory) and Shuo Zhang (Research Associates for Defense Conversion Inc.)*

### **A Method for Modeling Imprecise Detection Parameters as Fuzzy Numbers for a Rician Target in Rayleigh Background**

*S.W. Leung, J.W. Minett, Y.M. Siu, and M.K. Lee (City University of Hong Kong)*

### **Families of Waveforms With Good Auto and Cross Ambiguity Properties**

*Irina Gladkova (City College of New York)*

### **A Nonlinear Suppression Technique for Range Ambiguity Resolution in Pulse Doppler Radars**

*Jon M. Anderson, Michael A. Temple (Air Force Institute of Technology) and William M. Brown (Air Force Research Laboratory)*

### **SAR Prescreening Using Both Target and Shadow Information**

*Pierfrancesco Lombardo, Massimo Sciotti (University of Rome "La Sapienza") and Lance M. Kaplan (Clark Atlanta University)*

### **Radar Waveforms Based on Fibonacci Sequence**

*M. Bhattacharya and J. Astola (Tampere University of Technology)*

### **PSL-Preserving Operations for Minimum-PSL Binary Codes Searches**

*Gregory E. Coxson (Lockheed Martin)*

### **Development of a Digital Array Radar (DAR)**

*B. Cantrell, J. de Graaf (Naval Research Laboratory), L. Leibowitz (SFA, Inc.), G. Meurer (Massachusetts Institute of Technology-Lincoln Laboratory), C. Parris and R. Stapeleton (Naval Surface Warfare Center)*

### **Session 4: Radar Subsystems**

*Co-Chairs: Mr. Todd Kastle (Air Force Research Laboratory/SN)  
Dr. Paul Hughes (Naval Research Laboratory)*

### **1620 - 1640 Digitization Requirements for Digital Radar Arrays**

*Michael Zatman (Massachusetts Institute of Technology-Lincoln Laboratory)*

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- 1640 – 1700    **An Analytical Formulation for TDU Quantization Error Impact on Wideband Phased-Array Performance**  
*Robert Howard and David Aalfs (Georgia Tech Research Institute)*
- 1700 - 1720    **A Stacked A/D Converter Principle for Improving Radar Signal Processor Dynamic Range,**  
*Vilhelm Gregers-Hansen, Steven M. Brockett and Patrick E. Cahill (Naval Research Laboratory)*
- 1720 - 1740    **Mitigation of Digital Array Nonlinearities**  
*Daniel J. Rabideau and L. Cole Howard (Massachusetts Institute of Technology-Lincoln Laboratory)*
- 1740            **Closing Remarks and Announcements**
- 1745            **Poster 2 tear-down**
- 1830 - 1900    **Reception**
- 1900 -2130    **Banquet**

### ***Wednesday, May 2, 2001***

- 0700            **Registration opens**
- 0730            **Poster 3a/Poster 3b Set-Up**
- 0800-0810    **Introduction and Announcements**
- Session 5: STAP/AP**  
*Co-Chairs: Dr. Joe Guerci (Defense Advanced Research Projects Agency)  
Mr. Jim Day (Lockheed-Martin)*
- 0810 - 0830    **Digital Beamforming for an Active Conformal Array**  
*M. Dinnichert (Office National d'Etudes et de Recherches Aéropatiales)*
- 0830 - 0850    **Superdirectivity and SNR Constraints in Wideband Array-Pattern Design**  
*Dan P. Scholnik and Jeffrey O. Coleman (Naval Research Laboratory)*
- 0850 - 0910    **Adaptive Detection in Dense Target Environments**  
*William L. Melvin (Georgia Tech Research Institute) and Joseph R. Guerci (Defense Advanced Research Projects Agency)*

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## 2001 IEEE RADAR CONFERENCE

**0910 - 0930 Performance Analysis of the Nonhomogeneity Detector for STAP Applications**

*M. Rangaswamy (ARCON Corporation), B. Himed and J. H. Michels  
(Air Force Research Laboratory)*

**0930 - 0950 Bistatic STAP Performance Analysis in Radar Applications**

*Braham Himed James H. Michels (Air Force Research Laboratory)  
and Yuhong Zhang (Stiefvater Consultants)*

**0950 - 1020 Poster 3a Overview**

*Co-Chairs: Maj. Scott Berger, Ph.D. (Air Force Research Laboratory/VS)  
Dr. Peter Willett (University of Connecticut)*

**Introduction to Student Paper Program**

*Co-Chairs: Dr. Victoria Franques (AFOSR)  
Dr. Harold Szu (Office of Naval Research)*

**1020 - 1030 Break**

**1030 - 1100 Poster 3a: STAP/AP, Tracking**

**Application of Array Processing Techniques to Multibaseline InSAR  
for Layover Solution**

*F. Gini, F. Lombardini and P. Matteucci (University of Pisa)*

**Fast Converging Robust Adaptive Arrays**

*Michael L. Picciolo and Karl Gerlach (Naval Research Laboratory)*

**Adaptive Marginal Beamforming for Multiple Moving Sources  
and Impulse Noise**

*Vladimir Katkovnik and Yonghoon Kim (Tampere University of Technology)*

**Sidelobe Reduction through Subarray Overlapping for Wideband Arrays**

*C. T. Lin and Hung Ly (Naval Research Laboratory)*

**Effects of Internal Clutter Motion on STAP in a Heterogeneous Environment**

*Paul M. Techau, Jameson S. Bergin (ISL, Inc.) and  
Joseph R. Guerci (Defense Advanced Research Projects Agency)*

**Integration of Bayes Detection and Target Tracking in Real Clutter Image Sequences**

*Marcelo G.S. Bruno (University of São Paulo)  
and José M.F. Moura (Carnegie Mellon University)*

**GMTI/SIGINT Fusion Algorithms for Positional Estimation and Track Maintenance**

*K. F. McDonald and W. S. Kuklinski (The MITRE Corporation)*

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### **Selection of the Radar Waveform from Tracking Considerations**

*Ruixin Niu, Peter Willett, and Yaakov Bar-Shalom (University of Connecticut)*

### **Experimental Results for Adaptive Radar Imaging in a Wide Angular Sector**

*Mark Curry and Yasuo Kuga (University of Washington)*

### **Performance Comparison of Fast-Scan GMTI/STAP Architectures**

*J. B. Gaffney, G. L. Guttrich, B. N. Suresh Babu and J. A. Torres  
(The MITRE Corporation)*

### **GMTI Performance of $\Sigma\Delta$ -STAP for a Forward-Looking Radar**

*Peter W. Moo (Defence Research Establishment Ottawa)*

1030 - 1100

### **Poster 3b: Student Paper Program**

### **Space-Time Processing for Airborne High Range Resolution Phased Array Radar**

*Nanzhi Jiang and Jian Li (University of Florida)*

### **PEOD: Padé Estimated Optimum (Radar) Detector**

*Emmanuelle Jay, Jean-Phillippe Ovarlez (Office National d'Etudes et de Recherches  
Aérospatiales), David Declercq and Patrick Duvaut (ENSEA)*

### **A Novel Threshold Optimization for Distributed OS-CFAR of Multistatic Radar Systems By Using the Genetic Algorithm**

*Weixian Liu, Yilong Lu and Jeffrey S. Fu (Nanyang Technological University)*

### **Chaotic Phase Code for Radar Pulse Compression**

*Xin Wu, Weixian Liu, Lei Zhao and Jeffrey S. Fu  
(Nanyang Technological University)*

### **A Novel Approach for CFAR Processors Design**

*Lei Zhao, Xin Wu, Weixian Liu, and Jeffrey S. Fu  
(Nanyang Technological University)*

### **Signal Processing Method for Switch Antenna Array of FMCW Radar**

*Yang Li and Zhenghe Feng (Tsinghua University)*

### **Detecting A Step Pattern Of Change In Multitemporal SAR Images**

*Tiziana Macrì Pellizzeri and Pierfrancesco Lombardo  
(University of Rome "La Sapienza")*

### **Signal Processing of Ground Penetrating Radar Using Super Resolution Technique**

*Shanker Man Shrestha, Ikuo Arai, Takashi Miwa and Yoshiyuki Tomizawa  
(The University of Electro-Communications, Tokyo)*

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**Simulation Comparison of Two Selection Procedures for Detecting the Number of Signal Components**

*Shuo Zhang (Syracuse University) and Kenneth Stiefvater (Research Associates for Defense Conversion Inc.)*

**$\omega$ -k Quadtree UWB SAR Focusing**

*M.C. Cobb and J.H. McClellan (Georgia Institute of Technology)*

**A General Signal Processing Algorithm For MTI With Multiple Receive Apertures**

*Nathan Goodman and Jim Stiles (University of Kansas)*

**Target-to-Clutter Contrast Enhancement Using Radar Doppler Polarimetry**

*Dmitri Moisseev, Christine Unal, Herman Russchenberg and Leo Ligthart (Delft University of Technology)*

### **Session 6: Data and Signal Processing**

*Co-Chairs: Dr. Peter Willett (University of Connecticut)*

*Mr. John Gray (Naval Surface Warfare Center/Dahlgren)*

**1100 - 1120 The Problem of Kill Assessment: A Challenge for Radar Tracking Systems**

*John E. Gray, John Richard and Paul Brastrom (Naval Surface Warfare Center)*

**1120 - 1140 Best Management of FM Waveform by a Missile-Borne Pulsed Doppler Radar During High-Manoeuvring Target Tracking in Strong Clutter Environment**

*S. Camplani and D. Pistoia (Alenia Marconi Systems)*

**1140 - 1200 Maximum Likelihood Angle Extractor for Two Closely Spaced Targets**

*A. Sinha, T. Kirubarajan and Y. Bar-Shalom (University of Connecticut)*

**1200 - 1220 CFAR Detection of Oil Slicks on the Ocean Surface by a Multifrequency/Multipolarization SAR**

*Antonio De Maio (Università degli Studi di Napoli "Federico II")  
Giuseppe Ricci and Manlio Tesauro (Università degli Studi di Lecce)*

**1230 - 1340 Lunch**

**1330 Poster 3a and 3b Tear Down/Poster 4 Set-Up**

### **Session 7: Phenomenology/Antennas**

*Co-Chairs: Mr. Mike Tuley (IDA)*

*Dr. Bob Trebits (Georgia Tech Research Institute)*

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- 1340 - 1400**    **Ultra-Wideband P-3 and CARABAS II Foliage Attenuation and Backscatter Analysis**  
*L. A. Bessette and S. Ayasli (Massachusetts Institute of Technology-Lincoln Laboratory)*
- 1400 - 1420**    **Wide-Angle L-Band ISAR Imaging Using Wigner-Ville Distribution**  
*Yong Wu and David C. Munson, Jr. (University of Illinois at Urbana-Champaign)*
- 1420 - 1440**    **Effects of Diffuse Multipath on the Statistics of Monopulse Measurements**  
*W. D. Blair (Georgia Tech Research Institute) and M. Brandt-Pearce (University of Virginia)*
- 1440 - 1500**    **Dual Frequency Measurements of Ocean Forward Scatter with an Ultrawideband Radar**  
*Pete Hansen, Kim Scheff, Eric Mokole and Edmond Tomas (Naval Research Laboratory)*
- 1500 - 1520**    **Full Spatial and Polarimetric Characterization of a UHF Antenna for Ultra-Wide SAR**  
*James M. Ralston and Elizabeth Li Ayers (Institute for Defense Analyses)*
- 1520 - 1540**    **Poster 4 Overview**
- 1540 - 1550**    **Break**
- 1550 - 1620**    **Poster 4: Phenomenology, Antennas, Signal Processing, Radar Systems**  
*Co-Chairs: Dr. Lance Kaplan (Clark Atlanta University)  
Dr. Clay Stewart (Science Applications International Corporation)*
- Texture Modeling, Estimation, and Validation Using Measured Sea Clutter Data**  
*Fulvio Gini and Maria Greco (University of Pisa)*
- MSAG Based MAE-UAV Active Array Antenna**  
*Chuck Quintero and Tom Brukiewa (ITT Industries)*
- Ocean Wave Observation by CW Millimeter Wave Radar with Narrow Beam**  
*Michimasa Kondo, Keigo Kawai, Hiroaki Hirano and Takahiko Fujisaka (Tokyo University of Mercantile Marine)*
- Bistatic Reflectivity Measurements at X, Ku, Ka and W-Band Frequencies**  
*Brenda L. Matkin, James H. Mullins (U.S. Army Aviation and Missile Command) and Perry Vanderford (SIMTECH)*
- Angular Glint Suppression For Mm-Wave Terminal Guidance Radar Based On Polarization Agility And RCS Weighting**  
*Xiaolin Qiao and Ming Jin (Harbin Institute of Technology)*
- Characterization of C-Band and X-Band IFSAR Data for 3D Urban Analysis**

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*P. Gamba (Università di Pavia) and B. Houshmand  
(Jet Propulsion Laboratory-California Institute of Technology)*

### **New Ranging Algorithm for FM/CW Radars**

*B. Cantrell, H. Faust, A. Caul and A. O'Brien (Naval Research Laboratory)*

### **Radar Imaging of Ground Moving Targets**

*Victor C. Chen, Ron Lipps and Maitland Bottoms  
(Naval Research Laboratory)*

### **Filters for Polarimetric Calibration of UWB SAR Imagery**

*Gregory A. Showman (Georgia Tech Research Institute)  
and James H. McClellan (Georgia Institute of Technology)*

### **Clutter Suppression in Radar by Quasi-Continuous Complex Signal and Processing Algorithm Structure Optimization**

*Sergey P. Kalenitchenko and Roman V. Rodionov  
(Saint Petersburg State Electrotechnical University)*

## **Session 8: Radar Systems and Signal Processing**

*Co-Chairs: Dr. Jerry Crain (University of Oklahoma)  
Dr. Ed Chornoboy (Massachusetts Institute of Technology-Lincoln Laboratory)*

- 1620 - 1640 Shadow-Feature-Enhanced ML-CFAR Detection for a Swerling 1 Target in Weibull Clutter**  
*J. W. Minett, S. W. Leung, Y. M. Siu, and M. K. Lee  
(City University of Hong Kong)*
- 1640 - 1700 A Numerical Waveform Design Approach to Decorrelate Target and Noise**  
*Robert J. Bonneau and Michael M. Wicks (Air Force Research Laboratory)*
- 1700 - 1720 Processing of Multi-Aperture SAR to Produce Fine-Resolution Images of Arbitrarily Large Extent**  
*Jim Stiles and Nathan Goodman (University of Kansas)*
- 1720 - 1740 Determinations Of Aircraft Position And Orientation From Images Of A Millimetric Surface Radar**  
*P. F. Pellegrini and E. Giannini (University of Florence)*
- 1740 Closing Remarks and Announcements**
- 1750 Poster 4 Tear-Down**

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## 2001 IEEE RADAR CONFERENCE

***Thursday, May 3, 2001***

**0700**            **Tutorial Registration**

**0800 - 1200**    **Morning Tutorials**

**Tutorial #1: Introduction to Synthetic Aperture Radar: A Signal Processing Viewpoint**

*Dr. Dave Munson*

**Tutorial #2: Multitarget Tracking and Multisensor Fusion**

*Dr. Yaakov Bar-Shalom*

**Tutorial #3: Radar Cross Section**

*Dr. John Shaeffer*

**Tutorial #4: Adaptive Array Processing and STAP Theory, Applications, and Advanced Techniques**

*Dr. Joe Guerci*

**1300 - 1700**    **Afternoon Tutorials**

**Tutorial #5: Pulse Compression in Radar Systems**

*Dr. Marvin Cohen*

**Tutorial #6: Automatic Target Recognition using SAR**

*Dr. Les Novak*

**Tutorial #7: Understanding the Fundamentals, Merits, Complexities, and Applications of Bistatic Radar**

*Mr. Bob Ogrodnik*

**Tutorial #8: Space Based Imaging Radar (with Application to GMTI)**

*Dr. Chuck Livingstone*