Introduction

SWIR IMAGING AND RANGING

Ultra high-speed near-infrared camera [5783-1]
B. Cromwell, R. Wilson, R. Johnson

640×512 InGaAs focal plane array camera for visible and SWIR imaging [5783-2]
T. Martin, R. Brubaker, P. Dixon, M. Gagliardi, T. Sudol

A 320×256 InGaAs camera for range gated and staring applications [5783-3]
M. Ettenberg, R. Brubaker, M. Blessinger, V. Burzi

Megapixel InGaAs arrays for low background applications [5783-4]
A. Hoffman, T. Sessler, J. Rosbeck, D. Acton, M. Ettenberg

Monolithically integrated near-infrared and mid-infrared detector array [5783-122]
S. Bandara, S. Gunapala, D. Ting, J. Liu, C. Hill, J. Mumolo, J. Liu

Resonant cavity enhanced InGaAs photodiodes for high speed detection of 1.55 µm infrared radiation [5783-107]
J. Kaniewski, J. Muszalski, J. Pawluczyk, J. Piotrowski

Characterization of InGaAs linear array for applications to remote sensing [5783-113]

TYPE II SUPERLATTICE DETECTORS AND THEIR APPLICATIONS I

Type-II InAs/GaInSb superlattices for infrared detection: an overview [5783-5]
G. Brown

A novel surface preparation methodology for epi-ready antimonide based III-V substrates [5783-7]
P. Dutta, G. Rajagopalan, H. Kim, A. Kumar

High performance Type II InAs/GaSb superlattices for mid, long, and very long wavelength infrared focal plane arrays [5783-8]
M. Razeghi, Y. Wei, A. Gin, A. Hood, V. Yazdanpanah, M. Tidrow, V. Nathan

TYPE II SUPERLATTICE DETECTORS AND THEIR APPLICATIONS II

Dry etching, surface passivation and capping processes for antimonide based photodetectors [5783-9]
P. Dutta, J. Langer, V. Bhagwat, J. Juneja

Passivation of MBE grown GaInSb/InAs superlattice photodiodes [5783-10]
C. Hill, S. Keo, J. Mumolo, S. Gunapala

Dual band LWIR/VLWIR type-II superlattice photodiodes [5783-11]

InAs/(GaIn)Sb short-period superlattices for focal plane arrays [5783-12]

Compositional variations in MBE grown InAs-GaSb superlattices for infrared detector applications [5783-13]
CRYOCOOLERS FOR FOCAL PLANE ARRAYS

Linear-drive cryocoolers for the Department of Defense standard advanced dewar assembly (SADA) [5783-14]
G. Tate

Design tradeoff considerations for tactical cryocoolers [5783-15]
B. Ross, M. Brest

Virtual accelerometer for sensorless over-stroking control in a linear compressor of a cryogenic cooler [5783-16]
A. Veprik, H. Vilenchik, N. Pundak

Pulse tube cryocooler for IR applications [5783-17]
H. Korf, I. Rühlich, M. Mai, G. Thummes

Raytheon dual-use long life cryocooler [5783-19]
C. Kirkconnell, B. Ross

Development of the LSF95xx 2nd generation flexure bearing coolers [5783-20]
J. Mullie, P. Bruins, T. Benschop, M. Meijers

Reliability optimization for IR detectors with compact cryo-coolers [5783-21]

MOSTLY LONG-WAVE IR HgCdTe

I-V and noise performance in MWIR to VLWIR large area Hg_{1-x}Cd_{x}Te photodiodes [5783-22]

Predicted performance of HgCdTe photodiodes for 15-25 µm detection [5783-23]
M. Reine, S. Tobin, P. Norton, P. LoVecchio

Advancements in HgCdTe VLWIR materials [5783-24]
A. Gilmore, J. Bangs, A. Gerrish, A. Stevens, B. Starr

Long wave HgCdTe staring arrays at Sofradir: from 9 µm to 13+ µm cut-offs for high performance applications [5783-25]
A. Manissadjian, P. Tribolet, G. Destefanis, E. De Borniol

Recent progress on LWIR and VLWIR HgCdTe focal plane arrays [5783-26]
M. Chu, S. Terterian, D. Walsh, H. Gurgenian, S. Mesropian, R. Rapp, W. Holley

ON/NEAR FPA IMAGE AND SIGNAL PROCESSING

ColorCam: a color-based object recognition camera [5783-27]
R. Etienne-Cummings, P. Pouliquen, M. Lewis

Operational and performance comparisons between conventional and foveating large format infrared focal plane arrays [5783-28]
M. Massie, J. Curzan, R. Coussa

Advanced on FPA and near FPA image processing for infrared sensors [5783-29]
J. Caulfield, V. Ovod, R. Coussa, C. Baxter, M. Massie

On-chip normal flow computation with aperture problem compensation circuitry [5783-30]
V. Gruev, R. Etienne-Cummings

Insect-based visual motion detection with contrast adaptation [5783-31]
P. Shoemaker, D. O'Carroll

Advanced image processing package for FPGA-based re-programmable miniature electronics [5783-32]
V. Ovod, C. Baxter, M. Massie, P. McCarley
DEVELOPMENT OF THIRD GENERATION INFRARED IMAGERS

Dual-waveband infrared focal plane arrays using MCT grown by MOVPE on silicon substrates [5783-33]
J. Giess, M. Glover, N. Gordon, A. Graham, M. Haigh, J. Hails, D. Hall, D. Lees

Development of two-color focal-plane arrays based on HDVIP [5783-34]
P. Dreiske

Third generation FPA development status at Raytheon Vision Systems [5783-35]

Third generation focal plane array IR detection modules and applications [5783-36]

Third generation and multicolor IRFPA developments: a unique approach based on DEFIR [5783-37]
P. Tribolet, G. Destefanis

Adaptive focal plane array: an example of MEMS, photonics, and electronics integration [5783-39]
W. Gunning, J. DeNatale, P. Stupar, R. Borwick, R. Dannenberg, R. Sczupak, P. Pettersson

Progress in negative luminescent Hg1-xCdxTe diode arrays [5783-100]

Progress in the development of vertically integrated sensor arrays [5783-41]
R. Baierak, S. Horn

HOTYEYE: a novel thermal camera using higher operating temperature infrared detectors [5783-42]

Reaching for the sensitivity limits of uncooled and minimally cooled thermal and photon infrared detectors [5783-43]
S. Horn, D. Lohrman, P. Norton, K. McCormack, A. Hutchinson

Photomultiplication with low excess noise factor in MWIR to optical fiber compatible wavelengths in cooled HgCdTe mesa diodes [5783-44]

UNCOOLED FPAS AND APPLICATIONS I

Beyond Omega: next-generation miniature infrared camera [5783-46]
J. Kostrzewa, W. Terre, W. Meyer

First demonstration of 25 µm pitch uncooled amorphous silicon microbolometer IRFPA at LETI-LIR [5783-47]

Progress on monolithic integration of cheap IR FPAs of polycrystalline PbSe [5783-48]

Expanded applications for high performance VOx microbolometer FPAs [5783-49]

Micromachined infrared sensors with device-level encapsulation [5783-50]
A. Dave, Z. Celik-Butler, D. Butler
NOVEL UNCOOLED TECHNOLOGIES

Tunable antenna-coupled metal-oxide-metal (MOM) uncooled IR detector [5783-51]
P. Esfandiari, G. Bernstein, P. Fay, W. Porod, B. Rakos, A. Zarandy, B. Berland, L. Boloni, G. Boreman, B. Lail, B. Monacelli, A. Weeks

Uncooled FPA with optical reading: reaching the theoretical limit [5783-52]
L. Secundo, Y. Lubianiker, A. Agranat

Novel low-cost uncooled infrared camera [5783-53]

High sensitivity photomechanical MW-LWIR imaging using an uncooled MEMS microcantilever array and optical readout [5783-54]
J. Zhao

UNCOOLED FPAS AND APPLICATIONS II

Uncooled focal plane array detector development at InfraredVision Technology Corporation [5783-55]
K. Hay, D. Van Deusen

Technology and application advancements of uncooled imagers [5783-56]
P. Norton, M. Kohin

MWIR uncooled microbolometer: a way to increase the number of applications [5783-57]
B. Fieque, A. Crastes, O. Legras, J. Tissot

The path to affordable and available 640×480 uncooled FPAs [5783-58]
F. Pantuso

Hybrid micropackaging technology for uncooled FPAs [5783-59]
P. Topart, C. Alain, L. LeNoc, S. Leclair, Y. Desroches, B. Tremblay, H. Jerominek

Uncooled detector development program at SCD [5783-60]

320×240 and 640×480 UFPAs for TWS and DVE applications [5783-61]
C. Han, R. Rawlings, M. Sweeney, S. Whicker, D. Peysha, J. Clarke, B. Sullivan, C. Li, P. Howard

640×480 pixel uncooled infrared FPA with SOI diode detectors [5783-63]

35 µm pitch at ULIS, a breakthrough [5783-64]
C. Trouilleau, A. Crastes, O. Legras, J. Tissot, J. Chatard

System integration of the XM29 combat rifle: results and program status [5783-65]
E. Brindley, J. Lillie, P. Plocki, R. Volz

Amorphous Ge,Si$_{1-x}$ and Ge$_x$Si$_{1-x}$O$_y$ thin films for uncooled microbolometers [5783-66]
M. Rana, D. Butler

Enhancement of YBCO microbolometer performances with regionally thinned microbridges [5783-121]
P. Mérel, P. Laou, F. Wong

Uncooled long wave infrared photodetectors with optimized spectral response at selected spectral ranges [5783-118]

Measurement of thermal time constant of microbolometer arrays [5783-109]
A. Syllaios, M. Ha, W. McCordel, T. Schimert
TARGET ACQUISITION

IR sensors and imagers in networked operations [5783-67]
R. Breiter, W. Cabanski

A COTS-MQS shipborne EO/IR imaging system [5783-68]
M. Hutchinson, J. Miller, J. Weaver

Polarization in the MWIR: a method to improve target acquisition [5783-69]
Y. Aron, Y. Gronau

Evolution path of MWS technologies: RF, IR, and UV [5783-70]
G. Tidhar, R. Schlisselberg

Emerging research directions in air-to-ground target detection and discrimination [5783-71]
M. Eismann

SECURITY AND SITUATIONAL AWARENESS

Sense and avoid technology for Global Hawk and Predator UAVs [5783-72]
J. McCalmont, J. Utt, M. Deschenes, M. Taylor

Novel concepts for low-cost IR security sensors [5783-73]
K. Liddiard

Surveillance systems integrating multiple sensors for enhanced situational awareness [5783-74]
J. B. Van Anda, J. D. Van Anda

Improving land vehicle situational awareness using a distributed aperture system [5783-75]
J. Fortin, J. Bias, A. Wells, L. Riddle, G. van der Wal, M. Piacentino, R. Mandelbaum

A monolithically integrated HgCdTe SWIR photodetector and tunable MEMS-based optical filter [5783-101]

QWIP FPAS AND APPLICATIONS

QWIP and 3rd generation IR imagers [5783-77]
E. Costard, P. Bois, X. Marcadet, A. Nedelcu

Development of mid-wavelength QWIP FPA [5783-78]
K. Ozaki, Y. Uchiyama, H. Nishino, Y. Matsukura, N. Kajihara, T. Fuji

Angular response of grating-coupled quantum well infrared photodetectors: an experimental study [5783-80]
J. Le Rouzo, I. Ribet-Mohamed, N. Guérineau, M. Tauvy, H. Schneider, T. Maier

Laboratory and field performance of a megapixel QWIP focal plane array [5783-81]
A. Goldberg, E. Cho, B. McQuiston

Characterization and modeling of a quantum cascade detector [5783-82]
C. Koeniguer, L. Gendron, X. Marcadet, V. Berger

Beyond third generation MCT: SXGA QWIP [5783-83]
S. Crawford, T. Skivington, R. Craig, A. Haining, E. Costard, E. Belhaire, P. Bois

1024×1024 pixel MWIR and LWIR QWIP focal plane arrays and 320×256 MWIR:LWIR pixel colocated simultaneous dualband QWIP focal plane arrays [5783-84]

Demonstration of 256×256 dual-band QWIP infrared FPAs [5783-85]
INFRARED OPTICS AND APPLICATIONS I

Compact multi-band (VIS/IR) zoom imager for high resolution long range surveillance [5783-86]
A. Bodkin, A. Sheinis, J. McCann

Dichroic beamsplitter for a dual-wavelength camera in a long-range airborne reconnaissance system [5783-87]
D. Freiman, Z. Elgart, A. Chernoborov

Infrared catadioptric lens design considerations [5783-88]
T. Palmer

INFRARED OPTICS AND APPLICATIONS II

Infrared imaging lens with extended depth of focus [5783-89]
Z. Liu, A. Flores, M. Wang, J. Yang

Umicore opens new era in IR moulded optics by opening the first high volume facility [5783-95]
Y. Guimond, J. Franks, Y. Bellec, A. Bourget

Design challenges and considerations for image fusion in multi-spectral optical systems [5783-91]
M. Couture, V. Plotsker

VIPIR and VIPIR-S: next generation infantry thermal sights [5783-92]
C. Bigwood, L. Eccles, A. Jones, B. Jones, D. Meakin, S. Rickard, R. Robinson

Dual f/number optics for 3rd generation FLIR systems [5783-93]
J. Vizgaitis

Optically compensated zoom lens design in the infrared [5783-94]
A. Cox, J. Kane

SELECTED PAPERS ON INFRARED TECHNOLOGIES AND SENSORS

Novel high fill-factor, small pitch, reticulated InSb IR FPA design [5783-96]
R. Rawe, C. Martin, M. Garter, D. Endres, B. Fischer, M. Davis, J. Devitt, M. Greiner

FPA technology advancements at Rockwell Scientific [5783-97]
T. Chuh

Verifying aircraft position on approach with infrared imagery [5783-120]
C. Archer

Advanced thermal imaging system for tank sights [5783-106]
S. Hong, H. Kim, W. Yu, G. Lee, E. Yoon, Y. Park, S. Choi, J. Lee

Low-cost, low-power, disposable infrared markers [5783-115]
M. Pralle, M. McNeal, E. Johnson, I. Puscasu, A. Greenwald, J. Melnyk

Nonuniformity correction of infrared focal plane arrays [5783-119]
W. Isoz, T. Svensson, I. Renhorn

Infrared sensing of non-observable human biometrics [5783-110]
M. Willmore

Superconducting microbolometer with controllable coordinate sensitivity: an alternative approach to FPA design [5783-114]
V. Yefremenko, E. Gordiyenko, G. Shustakova, S. Bader, V. Novosad
Volume 5784 Infrared Imaging Systems: Design, Analysis, Modeling, and Testing XVI
Chair/Editor: Gerald C. Holst
Conference Committee

SYSTEM MODELING I

Handheld threat object identification performance of 2D visible imagery versus 3D visible imagery [5784-6]
K. Krapels, R. Driggers, B. Teaney, M. Tomkinson, S. Moyer

LWIR and MWIR fusion algorithm comparison using image metrics [5784-7]
S. Chari, J. Fanning, S. Salem, A. Robinson, C. Halford

Dual-band sensor fusion for urban target acquisition [5784-8]
M. Tomkinson, B. Teaney, J. Olson, S. Chari

Identification in static luminance and color noise [5784-9]
P. Bijl, M. Lucassen, J. Roelofsen

Probability of identification comparison for targets in the visible, illuminated shortwave infrared, and longwave infrared spectra [5784-10]
J. O'Connor, T. Corbin, D. Tomkinson

Urban vehicle cycle criteria for identification [5784-11]
N. Devitt, J. Hixson, S. Moyer, E. Flug

Resolvable cycle criteria for identifying personnel based on clothing and armament variations [5784-12]
S. Moyer, N. Devitt

New methodology for predicting minimum resolvable temperature [5784-13]
R. Vollmerhausen, V. Hodgkin

Range performance modeling for staring focal plane array infrared detectors [5784-14]
A. Dahlberg, O. Holmgren

SYSTEM MODELING II

A mechanism for the management and optimization of imaging systems with non-uniform imaging quality [5784-15]
T. Sanderson, P. Sprague, S. Smith, R. Simmons, R. Lines

The meaning of super-resolution [5784-16]
R. Driggers, K. Krapels, S. Young

Super-resolution reconstruction and its impact on sensor performance [5784-17]
J. Cha, E. Jacobs

Super-resolution image reconstruction from a sequence of aliased imagery [5784-18]
S. Young, R. Driggers

NVThermIP modeling of super-resolution algorithms [5784-19]
E. Jacobs, R. Driggers, S. Young, K. Krapels, G. Tener, J. Park

Multispectral imager modeling [5784-20]
J. Fanning, C. Halford, E. Jacobs, P. Richardson

Increasing the depth of field in an LWIR system for improved object identification [5784-22]
K. Kubala, H. Wach, V. Chumachenko, E. Dowski
SYSTEM SIMULATION

**NV-THERM based sensor effects for imaging simulations [5784-23]**
D. Tomkinson, T. Wilhelm, E. Flug, B. Miller, C. Ra, V. Tran, R. Kang

**Status of NVESD real time imaging sensor simulation capability [5784-24]**
B. Miller

**Data modeling enabled real time image processing for target discrimination [5784-25]**

**IRISIM: infrared imaging simulator [5784-26]**

SEARCH

**Search and detection modeling of military imaging systems [5784-27]**
T. Maurer, R. Driggers, D. Wilson

**Time limited field of regard search [5784-28]**
E. Flug, T. Maurer, O. Nguyen

**Search times and probability of detection in time-limited search [5784-29]**
D. Wilson, N. Devitt, T. Maurer

**The effect of targets in defilade on the search task [5784-30]**
O. Nguyen, E. Flug, T. Maurer

**On the relationship between human search strategies, conspicuity, and search performance [5784-31]**
M. Hogervorst, P. Bijl, A. Toet

TEST HARDWARE

**Advanced target projector technologies for characterization of staring-array based EO sensors [5784-32]**
A. Irwin, S. McHugh, J. Grigor, P. Bryant

**Practical issues with 3D noise measurements and application to modern infrared sensors [5784-36]**
P. O'Shea, S. Sousk

**Advanced man-portable test systems for characterization of UUTs with laser range finder/designator capabilities [5784-33]**
P. Bryant, B. Rich, J. Grigor, J. McKechnie, J. James, S. McHugh, R. Raney

**RAD9000: a high-performance spectral radiometer for EO calibration applications [5784-34]**
G. Matis, P. Bryant, J. Grigor, J. James, S. McHugh

**Uncertainty analysis of the AEDC 7V chamber [5784-38]**
D. Crider, H. Lowry, R. Nicholson, K. Mead

SYSTEMS AND SYSTEM TEST

**Measurement of uncooled thermal imager noise [5784-37]**
S. Sousk, P. O'Shea, V. Hodgkin

**Advanced test systems for production testing of cameras with day/night and visible/NIR capabilities [5784-35]**
T. Bryant, A. Irwin, P. Bryant, S. McHugh

**IR depth from stereo for autonomous navigation [5784-39]**
J. Zelek, M. Holbein, K. Hajebi, D. Asmar, D. Cheng

**Scene-based non-uniformity correction for focal plane arrays using a facet model [5784-41]**
M. Voigt, M. Zarzycki, D. LeMieux, V. Ramesh

**Cooled IR detectors calibration analysis and optimization [5784-42]**
P. Fillon, A. Combette, P. Tribolet
Volume 5785 Technologies for Synthetic Environments: Hardware-in-the-Loop
Chair/Editor: Robert Lee Murrer, Jr.
Conference Committee

Introduction

INFRARED PROJECTION: EMERGING TECHNOLOGIES AND CONCEPTS

**MIRAGE**: developments in IRSP systems, RIIc design, emitter fabrication, and performance [5785-1]

Light emitting diode arrays for HWIL sensor testing [5785-2]
N. Das, P. Shen, G. Simonis, J. Gomes, K. Olver

Plasma display technology for scene projector application [5785-3]
S. Solomon, M. Hawkins, N. Mastronardi

Liquid crystal on silicon infrared scene projectors [5785-4]
T. Ewing, W. Folks

A new electron beam-addressed reflective spatial light modulator and projection system for HWIL scene generation [5785-5]
Y. Liu, C. Gutleben

Electrostatic artificial eyelid actuator as an analog micromirror device [5785-6]
S. Goodwin, D. Dausch, S. Solomon, M. Lamvik

INFRARED PROJECTION: CALIBRATION, CHARACTERIZATION, AND INTEGRATION

Advancements in the micromirror array projector technology II [5785-7]
D. Beasley, M. Bender, J. Crosby, S. McCall, T. Messer, D. Saylor

An analysis of interface requirements of target scene projectors mounted to motion simulators [5785-8]
R. Mitchell

Emissive infrared projector sparse grid nonuniformity correction [5785-9]
R. Joyce, L. Swierkowski, O. Williams

Inverse sparse grid flood non-uniformity correction [5785-11]
M. Bowden, J. Buford

Accuracy of aperture irradiances from a resistor-array projection system [5785-13]
D. Flynn, S. Marlow, R. Sisko, R. Thompson

INFRARED PROJECTION: SOLUTIONS FOR LADAR

Current efforts on developing an HWIL synthetic environment for LADAR sensor testing at AMRDEC [5785-17]
H. Kim, M. Cornell, C. Naumann

HWIL FACILITY DEVELOPMENT

Hardware-in-the-loop test facility for the standard missile-3 kinetic warhead [5785-18]
R. Patchan

Scene projection developments in the AEDC space simulation chambers [5785-19]
H. Lowry, D. Crider, W. Goethert, W. Bertrand, S. Steely

...
Progress in the development of a cold background flight motion simulator mounted infrared scene projector for use in the AMRDEC hardware-in-the-loop facilities [5785-20]
T. Cantey, D. Beasley, M. Bender, T. Messer, D. Saylor, J. Buford

HWIL testing of smart weapon systems [5785-21]
M. Swamp, H. Havlicek

Development and integration of the Army's advanced multispectral simulation test acceptance resource (AMSTAR) HWIL facilities [5785-22]
K. LeSueur, W. Lowry, J. Morris

Air Force electronic warfare evaluation simulator (AFEWES) infrared test and evaluation capabilities [5785-23]
H. Jackson II, T. Blair, B. Ensor, C. Deyo, J. Longbottom, J. White

Implementation of real-time input/output interfaces at the AMRDEC Advanced Simulation Center's hardware-in-the-loop facilities [5785-24]
J. Morris, D. Beck, H. Richard

JOINT SESSION WITH CONFERENCE 5784

History of resistor array infrared projectors: hindsight is always 100% operability [5785-25]
O. Williams, G. Goldsmith II, R. Stockbridge

SCENE GENERATION: TECHNOLOGY, MODELING, AND RENDERING

Real-time infrared scene generation software for i2RSS hardware in the loop [5785-26]
P. Lyles, D. Cosby, J. Buford, Jr., D. Bunfield

High quality 16-bit rendering for real-time hardware-in-the-loop scene generation using commercial PC graphics hardware [5785-27]
J. Potter

Pre-filtering synthetic imagery by three-dimensional blurring [5785-29]
T. Sills

Real-time infrared and semi-active laser scene generation software for AMSTAR hardware in the loop [5785-30]
D. Cosby, P. Lyles, D. Bunfield, D. Trimble, T. Rossi

Synthetic line-of-sight algorithms for hardware-in-the-loop simulations [5785-32]
H. Richard, A. Lowman, G. Ballard

Volume 5786 Window and Dome Technologies and Materials IX
Chair/Editor: Randal W. Tustison
Conference Committee
Introduction

DEVELOPMENT OF SPINEL AND ALUMINUM OXYNITRIDE

History of development of polycrystalline optical spinel in the U.S. [5786-1]
D. Harris

A historical view of ALON [5786-2]
R. Sullivan

Tri-mode seeker dome considerations [5786-3]
J. Kirsch, W. Lindberg, D. Harris, M. Adcock, T. Li, E. Welsh, R. Akins
A new powder production route for transparent spinel windows: powder synthesis and window properties [5786-4]
R. Cook, M. Kochis, I. Reimanis, H. Kleebe

Fabrication of transparent spinel: the role of impurities [5786-5]
I. Reimanis, K. Rozenburg, H. Kleebe, R. Cook

Hard transparent domes and windows from magnesium aluminate spinel [5786-6]
A. DiGiovanni, L. Fehrenbacher, D. Roy

Recent advances in spinel optical ceramic [5786-7]

Recent advances in ALON optical ceramic [5786-8]
J. Wahl, T. Hartnett, L. Goldman, R. Twedt, C. Warner

Optical characterization of AION and spinel [5786-9]
D. Blodgett, D. Hahn, M. Thomas

Characterization of ALON optical ceramic [5786-10]
C. Warner, T. Hartnett, D. Fisher, W. Sunne

METROLOGY AND CHARACTERIZATION OF OPTICAL COMPONENTS

High precision metrology of domes and aspheric optics [5786-11]
P. Murphy, J. Fleig, G. Forbes, M. Tricard

A fast F-number 10.6-micron interferometer arm for transmitted wavefront measurement of optical domes [5786-13]
D. Peterson, T. Fenton, T. von Der Ahe

Surface characterization and surface energy measurements on boron phosphide films prepared by PECVD [5786-14]

Variability in the performance of MIL-STD-810 sand testing [5786-15]
K. Jacoby

SAPPHIRE WINDOWS AND DOMES

Producing large EFG sapphire sheet for VIS-IR (500-5000 nm) window applications [5786-16]
J. Locher, H. Bates, C. Jones, S. Zanella

Recent advances in deterministic low-cost finishing of sapphire windows [5786-18]
B. Hallock, P. Dumas, A. Shorey, M. Tricard

Optical and crystalline characteristics of large EFG sapphire sheet [5786-19]
H. Bates, C. Jones, J. Locher

Weibull statistical analysis of sapphire strength improvement through chemomechanical polishing [5786-20]
C. Klein, F. Schmid

How edge finish effects the strength of sapphire [5786-21]
K. Jacoby, S. Goodrich

NANOCRYSTALLINE, MICROCRYSTALLINE, AND AMORPHOUS OPTICAL MATERIALS

Aerodynamic IR domes of polycrystalline alumina [5786-22]
M. Parish, M. Pascucci, W. Rhodes

Methods for the fabrication of IR windows from nanoparticulates [5786-23]
S. Sengupta, R. Revur, J. Schorr, J. Adair, C. Szepesi

Synthesis and processing of nanocrystalline powders for IR transparent windows [5786-24]
M. Jain, G. Skandan, A. Singhal, D. Agrawal, Y. Feng, J. La Monica, J. Kirsch
Submicron-grained transparent yttria composites [5786-26]
B. Kear, R. Sadangi, V. Shukla, T. Stefanik, R. Gentilman

Synthesis and consolidation of nanophase yttria (Y₂O₃) [5786-25]
H. Eilers

Eye-safe Er,Yb:Y₂O₃ ceramic laser materials [5786-27]
H. Eilers

Characterization of transparent polycrystalline yttrium aluminum garnet (YAG) fabricated from nano-powder [5786-29]
J. Huie, R. Gentilman

Development of chalcogenide glasses as optical materials for infrared systems [5786-30]
R. Hilton

VIS-IR transmitting windows [5786-31]
S. Bayya, G. Chin, G. Villalobos, J. Sanghera, I. Aggarwal

New infrared transparent oxide glasses [5786-32]
R. Weber, J. Tangeman, K. Hiera, R. Scheunemann, J. Kim

FINISHING, COATING, AND SURFACE TREATMENTS FOR WINDOWS AND DOMES

Materials for high-energy laser windows: oxyfluoride glass vs. fusion-cast CaF₂ [5786-33]
C. Klein

Improvement of figure and finish of diamond turned surfaces with magneto-rheological finishing (MRF) [5786-35]
P. Dumas, D. Golini, M. Tricard

UltraForm finishing [5786-36]
E. Fess, J. Schoen, M. Bechtold, D. Mohring

Deterministic precision finishing of domes and conformal optics [5786-37]
A. Shorey, W. Kordonski, M. Tricard

Laser-line rejection or transmission filters based on surface structures built on infrared transmitting materials [5786-38]
D. Hobbs

Diffractively structured GaAs EOIR windows [5786-39]
M. Wilson, P. Coulter, J. Hammer, G. Borek

Design, fabrication, and measured performance of anti-reflecting surface textures in infrared transmitting materials [5786-40]
D. Hobbs, B. MacLeod

Electrochemical investigation of the stability and corrosion resistance of boron phosphide films prepared by PECVD [5786-41]

Improved rain erosion protection for multi-spectral ZnS [5786-42]
S. Joseph, O. Marcovitch, Y. Yadin, A. Steinberg, H. Zipin

Durable coatings for IR windows [5786-43]
WELCOME AND OPENING REMARKS

Automatic motion detection in reconnaissance imagery and other applications of real time orthorectification [5787-17]
D. Gordon

ISR SYSTEMS

MANTIS-3T: a low-cost light-weight turreted spectral sensor [5787-1]
J. Dirbas, T. Mireles, A. Davies, J. Schoonmaker, A. Lovett

The civil air patrol ARCHER hyperspectral sensor system [5787-2]

System design of an airborne infrared measurement system [5787-3]
L. Rousset-Rouviere, C. Marchon, S. Vendomele, C. Coudrain, J. Bruyant

Advanced airborne ISR demonstration system (USA) [5787-5]
D. Henry

SENSOR MANAGEMENT, INFORMATION STORAGE, AND DISPLAYS

A sensor management framework for autonomous UAV surveillance [5787-7]

Control and display stations for simultaneous multiple dissimilar unmanned aerial vehicles [5787-8]
D. Linne von Berg, M. Duncan, J. Howard, M. Kruer, J. Lee

Multi-sensor digital recorder systems for next generation maritime patrol aircraft and sensors [5787-9]
J. Hardy

Mosaics from video with burned-in metadata [5787-10]
M. Robertson, T. Howlett

Remote imagery for unmanned ground vehicles (RIUGV) [5787-11]
P. Frederick, R. Kania, B. Theisen, D. Ward, U. Benz, A. Baylot, J. Willis, H. Yamauchi

INFORMATION PROCESSING AND SYSTEM ENHANCEMENT

QUICKFIRE: a JPEG 2000/JPIP-enabled ISR screener application [5787-12]
S. Rajan, C. Kavanagh, J. Kasner, P. Maenner

Establishing a common coordinate view in multiple moving aerial cameras [5787-13]

Performance of an EO/IR sensor system in marine search and rescue [5787-16]
C. Leonard, M. DeWeert, J. Gradie, J. iokepa, C. Stalder
MOTION TRACKING

Two-color infrared missile warning sensors [5787-18]
F. Neele

A real-time video mosaicking and target tracking system [5787-19]
N. Jiang, L. Ma, G. Abousleman, J. Si

Target tracking, moving target detection, stabilisation and enhancement of airborne video [5787-20]
J. Dale, D. Scott, D. Dwyer, J. Thornton

LASERS, SENSORS, AND INFORMATION TRANSMISSION

Performance requirements for the laser event recorder [5787-21]

Ground and air test performance of the laser event recorder [5787-22]

CCD sensor and camera for 100 Mfps burst frame rate image capture [5787-23]
L. Lazovsky, D. Cismas, G. Allan, D. Given

Self-sustainability of optical fibers in airborne communications [5787-24]
A. Dwivedi, E. Finnegan

Volume 5788 Radar Sensor Technology IX

Chairs/Editors: Robert N. Trebits, James L. Kurtz

Conference Committee

KEYNOTE PAPER

History of SAR at Lockheed Martin (previously Goodyear Aerospace) [5788-1]
S. Lasswell

SAR SYSTEMS AND SIGNAL PROCESSING

A portfolio of fine resolution Ka-band SAR images: part I [5788-2]
A. Doerry, D. Dubbert, M. Thompson, V. Gutierrez

Possible effects of clear-air refractive-index perturbations on SAR images [5788-3]
A. Muschinski, F. Dickey, A. Doerry

Autofocus correction of SAR images exhibiting excessive residual migration [5788-5]
A. Doerry

RADAR SYSTEMS AND TECHNIQUES I

Very low cost stand-off suicide bomber detection system using human gait analysis to screen potential bomb carrying individuals [5788-6]
G. Greneker

Human tracking using a two-element antenna array [5788-7]
A. Lin, H. Ling

Leakage signal analysis for position-adaptive UAV radar applications [5788-9]
A. Mitra

Doppler visibility of coherent random noise radar systems [5788-10]
Z. Li, R. Narayanan
RADAR AND ASSOCIATED SIGNAL PROCESSING

Processing ground penetrating radar data from curvilinear interfaces [5788-11]
S. Radzevicius, B. Clark, T. Webster

A generalization of Huygen's principle and some applications [5788-12]
J. Gray, S. Addison

Generation of quasi-normal variables using discrete chaotic maps [5788-14]
B. Flores, B. Verdin, G. Thomas, A. Ashtari

Exploitation of ISAR imagery in Euler parameter space [5788-15]
C. Baird, W. Kersey, R. Giles, W. Nixon

RADAR SYSTEMS AND TECHNIQUES II

Multiple location SAR/ISAR image fusion for enhanced characterization of targets [5788-16]
S. Papson, R. Narayanan

Minimization of total cost of deploying unattended ground sensors [5788-17]
G. Kirose, H. Khatri

Transform domain communication system as an ultra-wideband radar [5788-18]
A. Nunez, J. Caldwell

RF sensor solutions for small lightweight unmanned aerial vehicles [5788-30]
R. Innocenti

An improved method for helicopter categorization [5788-20]
J. Tikkinen, E. Helander, T. Hintikka, A. Visa

Polarimetric, Ka-band, combined, short-pulse scatterometer, and radiometer system for platform application [5788-21]
A. Arakelyan, E. Alaverdyan, A. Arakelyan, S. Darbinyan, A. Hambarayan, V. Hambarayan, V. Karyan, G. Ogannesyan, N. Poghosyan, A. Smolin

POSTER SESSION

Theoretical study of sensing targets through the wall using ultra-wideband technology [5788-19]

A portfolio of fine resolution Ka-band SAR images: part II [5788-22]
A. Doerry, D. Dubbert, M. Thompson, V. Gutierrez

Land and sea clutter in bistatic millimeter-wave radar for small grazing angles [5788-23]
G. Kulemin

Real time optical positioning (RTOP) and a system-level concept merging optical positioning technology, commercial radar hardware, and software imaging techniques [5788-26]
B. Clark, T. Webster

Short pulse C-band Doppler scatterometer [5788-27]
A. Arakelyan, A. Hambarayan, A. Smolin, V. Karyan, G. Hovhannesyan, E. Alaverdyan, A. Arakelyan, V. Hambarayan

Efficiency of sea surface microwave signatures' detection and classification by synergetic application of altimeter and slight tilted radiometer data [5788-28]
A. Hambarayan, A. Arakelyan, A. Arakelyan
Error analysis of sparse passive synthesis radiometers on UAV platforms [5789-1]
M. Peichl, H. Suess

An all electronic passive millimeter wave imaging system [5789-2]
N. Salmon, J. Beale, A. Beard, M. Dean, S. Hayward, P. Hickling, S. Chiw, H. Ghafouri-Shiraz, P. Hall, R. Macpherson, R. Lewis, A. Lettington, D. Dunn

A new opto-mechanical scanner for millimeter and sub-millimeter wave imaging [5789-3]
A. Lettington, N. Alexander, D. Dunn

Flight test of a passive millimeter-wave imaging system [5789-4]
C. Martin, W. Manning, V. Kolinko, M. Hall

Fully-polarimetric passive scanning imager at millimeter wavelengths [5789-6]
A. Duric, M. Mallepell, M. Wuetrich, D. Weber, A. Magun

Holographic microantenna array metrology [5789-7]
E. Grossman, A. Luukanen, A. Miller

Noise limitations in millimeter-wave detection via optical upconversion [5789-8]
C. Schuetz, G. Schneider, J. Murakowski, D. Prather

Modeling and design of coupled cavity for the electro-optical modulators [5789-9]

Broadband microwave imaging with spectral hole burning for squint compensation [5789-10]
B. Braker, Y. Li, D. Gu, F. Schlottau, K. Wagner

First MMW characterization of ErAs/InAlGaAs/InP semimetal-semiconductor-Schottky diode (S³) detectors for passive millimeter wave and infrared imaging [5789-11]
H. Kazemi, J. Zimmerman, E. Brown, A. Gossard, G. Boreman, J. Hacker, B. Lail, C. Middleton

Low noise Sb-heterostructure diode detectors for W-band imaging arrays without RF amplification [5789-12]

Novel techniques for millimeter wave imaging systems operating at 100GHz [5789-13]
R. Mahon, W. Lanigan, J. Murphy, N. Trappe, S. Withington, W. Jellema

Illumination strategies to achieve effective indoor millimeter wave imaging for personnel screening applications [5789-14]
R. Doyle, B. Lyons, A. Lettington, T. McEnroe, J. Walshe, J. McNaboe, P. Curtin

A compact, low-cost, passive MMW security scanner [5789-15]
T. Williams, N. Vaidya

Circularly polarized millimeter-wave imaging for personnel screening [5789-17]
D. Sheen, D. McMakin, W. Lechelt, J. Griffin
Passive hyperspectral terahertz imagery for security screening using a cryogenic microbolometer [5789-19]
A. Luukanen, A. Miller, E. Grossman

A super-resolution technique with motion estimation considering atmospheric turbulence [5789-20]
H. He, L. Kondi

Passive cylindrical scan by unphased diffraction-limited antennas for low-cost concealed weapon detection [5789-21]
R. Serenelli

Performance analysis of wavelet based restoration for passive millimeter-wave images [5789-22]

POSTER SESSION

Applications of pointed ultra-resolution method in microwave imaging [5789-23]
E. Terentiev, N. Terentiev

Volume 5790 Terahertz for Military and Security Applications III

Chairs/Editors: R. Jennifer Hwu, Dwight L. Woolard, Mark J. Rosker

Conference Committee

TERAHERTZ SCIENCE AND APPLICATIONS

People screening using terahertz technology [5790-1]
C. Baker, W. Tribe, T. Lo, B. Cole, S. Chandler, M. Kemp

Terahertz imaging using an interferometric array [5790-2]
J. Federici, D. Gary, R. Barat, D. Zimdars

THz diffuse reflectance spectra of selected explosives and related compounds [5790-3]

Microwave/millimeter wave arbitrary waveform generation via ultrafast photonics [5790-4]
A. Weiner, J. McKinney, I. Lin

Widely frequency-tunable terahertz wave generation for biosciences [5790-5]
J. Nishizawa, K. Suto

THz gas sensing with submillimeter techniques [5790-6]
F. De Lucia, D. Petkie

THz characterization of lysozyme at different conformations [5790-7]
T. Globus, T. Khromova, R. Lobo, D. Woolard, N. Swami, E. Fernandez

Terahertz/millimeter wave characterizations of soils for mine detection: transmission and scattering [5790-8]
T. Du Bosq, R. Peale, A. Weeks, J. Grantham, D. Dillery, D. Lee, D. Muh, G. Boreman

Terahertz signature characterization of bio-simulants [5790-9]
A. Majewski, P. Miller, R. Abreu, J. Grotts, T. Globus, E. Brown

Terahertz imaging for antipersonnel mine detection [5790-10]
C. Dodson, M. Fitch, R. Osiander, J. Spicer
Simulation of a quantum dot microcavity terahertz laser [5790-11]
G. Solomon, Z. Xie, M. Agrawal

Bragg reflectors and 2D photonic crystals in the THz region [5790-12]
H. Sun, W. Shi, Z. Fu, Y. Ding, Y. Zotova

Grating gated FETs as narrowband tunable terahertz detectors [5790-13]

New type of sensitive infrared and submillimeter radiation photodetectors [5790-14]
A. Kozhanov, D. Dolzhenko, I. Ivanchik, D. Watson, D. Khokhlov

High-speed time domain terahertz security imaging [5790-17]
D. Zimdars, J. White, S. Williamson, G. Stuk

Sampled line reflectometers for terahertz s-parameter measurements [5790-18]
R. Weikle II, Z. Liu, L. Yang, S. Ulker, A. Lichtenberger

HEB heterodyne focal plane arrays: a terahertz technology for high sensitivity near-range security imaging systems [5790-19]

Gain comparison for periodically delta-doped p-Ge structures with vertical and in-plane transport [5790-20]
M. Dolguikh, A. Muravjov, R. Peale

Zone plate designs for terahertz frequencies [5790-22]
J. Wiltse

A bio-molecular inspired electronic architecture: bio-based device concepts for enhanced sensing [5790-23]
D. Woolard, Y. Luo, B. Gelmont, T. Globus, J. Jensen

Nitride-based two-terminal oscillators operating in the THz regime [5790-24]
K. Kim, V. Sokolov, V. Kochelap, V. Korotyeyev, D. Woolard

Terahertz molecular electronics devices and systems [5790-25]
Y. Ma, L. Yan, J. Seminario

THz + ‘X’: a search for new approaches to significant problems [5790-26]
F. De Lucia, D. Petkie, R. Shelton, S. Westcott, B. Strecker

Transient simulations of dilute magnetic semiconductors RTDs [5790-27]
H. Grubin

Aligned array FETs as a route toward THz nanotube transistors [5790-28]
Z. Yu, P. Burke

Real-time electron counting in semiconductor nanostructures [5790-29]
A. Rimberg, M. Thalakulam, W. Lu, Z. Ji, L. Pfeiffer, K. West

Highly efficient THz modulation using optically excited silicon [5790-30]
C. Karaalioglu, I. Chen, M. Brucherseifer, A. Meshal, R. Martini

Terahertz sources and detectors [5790-32]
T. Crowe, D. Porterfield, J. Hesler, W. Bishop, D. Kurtz, K. Hui

Terahertz reflection spectroscopy for explosives detection [5790-33]
M. Fitch, C. Dodson, Y. Chen, H. Liu, X. Zhang, R. Osiander

Terahertz-frequency quantum oscillator operating in the positive differential resistance region [5790-34]
P. Zhao, D. Woolard, M. Lasater, C. Kelley, R. Trew
Volume 5791 Laser Radar Technology and Applications X
Chair/Editor: Gary W. Kamerman
Conference Committee

3D IMAGING SENSORS I

Urban reconnaissance with an airborne laser radar [5791-1]
R. Morrison, J. Turner, M. Barwick, G. Hardaway

Long distance high accuracy 3-D laser radar and person identification [5791-2]
J. Andersen, J. Busck, H. Heiselberg

A 3D lidar sensor for volumetric imaging in highly backscattering media [5791-3]
W. Elkins, B. Ulich, J. Lawrence, H. Linton

The complementary nature of triangulation and ladar technologies [5791-4]
C. English, A. Deslauriers, I. Christie

A co-boresighted synchronized ladar/EO imager for creating 3D images of dynamic scenes [5791-5]
R. Pack, P. Israelsen, K. Sealy

Eyesafe imaging LADAR/infrared seeker technologies [5791-7]
J. Barenz, R. Baumann, H. Tholl

Powered low cost autonomous attack system: cooperative, autonomous, wide-area-search munitions with capability to serve as non-traditional ISR assets in a network-centric environment [5791-8]
J. Savage, J. O’Neal, R. Brown, J. Keeler

Tower test results for an imaging LADAR seeker [5791-9]

High resolution laser scanner with waveform digitization for subsequent full waveform analysis [5791-52]
A. Ullrich, R. Reichert

3D IMAGING SENSORS II

Urban reconnaissance with an ultra high resolution ground vehicle mounted laser radar [5791-10]
R. Morrison, J. Turner, M. Barwick, G. Hardaway

Target spectral estimation using direct detection and coherent detection ladar [5791-11]
D. Youmans

Coherent lidar range sensing by use of spatial-spectral holography [5791-12]
A. Hoskins, Y. Li, F. Schlottau, K. Wagner, C. Embry, W. Babbitt

A high resolution 3D laser camera for 3D object digitization [5791-13]
X. Zhu, S. Miller, M. Kwan, I. Smith

Development of FireLidar: an active imaging system for smoke and flame environments [5791-14]
R. Billmers, E. Billmers, M. Ludwig, E. Dressler, B. McCarthy

High-resolution 3D imaging laser radar flight test experiments [5791-15]

Demonstration of synthetic aperture imaging ladar [5791-17]
W. Buell, N. Marechal, J. Buck, R. Dickinson, D. Kozlowski, T. Wright, S. Beck

Coherent laser radar using eyesafe YAG laser transmitters [5791-19]
R. Stoneman, R. Hartman, A. Malm, P. Gatt
3D IMAGE INTERPRETATION AND VISUALIZATION

Precision geo-location at long range with multi-look lidar [5791-20]
M. Roth, A. Scheck, W. Chiu, K. Murphy

On analysis and visualization of full-waveform airborne laser scanner data [5791-21]
U. Soederman, A. Persson, J. Toepel, S. Ahlberg

Wide-area terrain mapping by registration of flash LIDAR imagery [5791-22]
B. Hanna, B. Chai, S. Hsu

Experimental determination of relative motion measurement accuracy for an auto-synchronous triangulation scanning laser camera [5791-23]
S. Piechocinski, J. Sasiadek

Segmentation, classification, and pose estimation of military vehicles in low resolution laser radar images [5791-24]
J. Neulist, W. Armbruster

LASER RADAR CALIBRATION AND CHARACTERIZATION

A range/depth modulation transfer function (RMTF) framework for characterizing 3D imaging LADAR performance [5791-26]
B. Staple, R. Earhart, P. Slaymaker, T. Drouillard II, T. Mahony

Statistical analysis and ground-based testing of the on-orbit Space Shuttle damage detection sensors [5791-28]
B. Miles, E. Tanner, J. Carter, G. Kamerman, R. Schwartz

Standards requirements for LADARs? [5791-29]
G. Cheok, W. Stone, A. Lyster

DETECTOR AND RECEIVER TECHNOLOGY

High-sensitivity 3 to 5 micron PPLN LADAR wavelength converter system [5791-30]
S. Kingsley, S. Sriram, P. Powers

Class AB readout cell designed to reduce the noise of a concurrent continuous-time readout architecture for imaging systems [5791-31]
M. Sarmiento, J. Garcia, F. Kiamilev, W. Lawler

1-micrometer Geiger-mode detector development [5791-33]

Large format time-of-flight focal plane detector development [5791-34]
R. Stettner, H. Bailey, S. Silverman

TARGETS, BACKGROUNDS, AND ENVIRONMENTAL MONITORING

Characterizing laser radar snow reflection for the wavelengths 0.9 and 1.5 micrometer [5791-35]
H. Larsson, O. Steinvall, T. Chevalier, F. Gustafsson, A. Persson, P. Andersson

Advanced oil pollution detection using an airborne hyperspectral lidar technology [5791-36]
A. Samberg

Improving three-tier environmental assessment model by using a 3D scanning FLS-AM series hyperspectral lidar [5791-37]
A. Samberg, S. Babichenko, L. Poryvkina

1.5 microns and the future of unattended aerosol lidar [5791-38]
G. Gimmestad, D. Roberts
NONIMAGING SYSTEMS

Anti-ship missile tracking with a chirped AM ladar - Update: design, model predictions, and experimental results [5791-40]
B. Redman, W. Ruff, B. Stann, M. Giza, W. Lawler, J. Dammann, W. Potter

MODELING AND SIMULATION

Time-gated topographic LiDAR scene simulation [5791-43]
S. Brown, D. Blevins, J. Schott

Supercomputer based ladar signature simulator [5791-44]
M. Welliver, T. Nichols, P. Gatt, C. Willis, S. Bunte

LASER RADAR COMPONENTS

Extending high-angular accuracy to a near omni-directional 3D range sensor [5791-49]
A. Iavarone, R. Fayek

Volume 5792 Laser Source and System Technology for Defense and Security
Chair/Editor: Gary L. Wood
Conference Committee

GAIN MEDIA ENGINEERING

Processing technology, laser, optical and thermal properties of ceramic laser gain materials [5792-1]

Characteristics of AFB interfaces of dissimilar crystal composites as components for solid state lasers [5792-3]
H. Lee, O. Meissner, H. Meissner

Modeling a diode pumped Er:Yb:glass laser with Co^{2+}:spinel as a passive Q-switch [5792-4]
J. Gruber, A. Nijjar, V. Nijjar, S. Chinn, M. Bowers, B. Zandi

Modeling of Er in ceramic YAG and comparison with single-crystal YAG [5792-2]
B. Zandi, J. Gruber, D. Sardar, T. Allik

LASER SOURCES

High peak power, short-pulse, eyesafe fiber laser for radar applications [5792-6]
M. Bowers, M. Savage-Leuchs, A. Liu, E. Eisenberg, J. Henrie, B. Jenson, L. Borschowa, C. Miller

Fiber laser with in-cavity polarization switching [5792-7]
X. Li, T. Morse, F. Luo, S. Ippolito

Mutual injection locking and coherent beam combining of multiple Nd:YVO_4 lasers [5792-9]
Q. Wang, S. Han, L. Yan, P. Ho, M. Dubinskii, G. Wood, B. Zandi

Quantum dot cascade heterostructure based on in-plane dipole moments for unipolar infrared cascade lasers [5792-10]
M. Gobet, D. Deppe
NOVEL LASERS

Diamond cooling of high-power diode-pumped Nd:YVO₄ and Nd:YAG lasers [5792-11]
Y. Tzuk, A. Tal, S. Goldring, Y. Glick, E. Lebiush, R. Lavi

Methodology for comparing worldwide performance of diverse weight-constrained high energy laser systems [5792-12]

Resonantly diode laser pumped 1.6-µm Er:YAG laser [5792-13]
D. Garbuzov, I. Kudryashov, M. Dubinskii

The measurement of gain in a supersonic, combustion-driven generator for NCl(a1delta) [5792-14]
G. Manke, T. Madden, C. Cooper, G. Hager

Airborne megawatt class free-electron laser for defense and security [5792-15]
R. Whitney, D. Douglas, G. Neil

LASER SYSTEMS

Experimental measurements of radiometric LADAR calibration targets [5792-16]
A. Ames, K. Meyer, D. Medina

Performance of 3D laser radar through vegetation and camouflage [5792-17]
O. Steinvall, H. Larsson, F. Gustafsson, D. Letalick, T. Chevalier, A. Persson, P. Andersson

CFD-based aero-optical performance prediction of a turret [5792-19]
Y. Hsia, W. Lin, H. Loh, P. Lin, D. Nahrstedt, J. Logan

Actively cooled SLMS technology for HEL applications [5792-21]
M. Jacoby, W. Goodman, J. Reily, J. Kegley, H. Haight, J. Tucker, E. Wright, W. Hogue

New developments in short-pulse eye safe lasers pay the way for future LADARs and 3D mapping performances [5792-22]
G. Pasmanik, K. Latone, A. Shilov, E. Shklovsky, A. Spiro, L. Tiour

POSTER SESSION

Minimization of the surface non-uniformity of a Nd:YVO₄ cylindrical bar grown by edge-defined film-fed growth (EFG) method, when the pressure in the furnace changes [5792-23]
L. Braescu, A. Balint, R. Szabo, S. Balint

Volume 5793 Atmospheric Propagation II

Chairs/Editors: Cynthia Y. Young, G. Charmaine Gilbreath
Conference Committee
Introduction

MODELING OF LASER PROPAGATION THROUGH THE EARTH'S ATMOSPHERE I

Analytical models of optical refraction paths in the lower atmosphere [5793-1]
B. Nener, N. Fowkes

Field validation of optical turbulence lidar technique [5793-33]

Gaussian beam weak scintillation: a tour of the D₁ region [5793-3]
G. Baker

Beam wander effects on the scintillation index of a focused beam [5793-4]
MODELING OF LASER PROPAGATION THROUGH THE EARTH’S ATMOSPHERE II

Coherent modes coupling approach to partially coherent, partially polarized beams in atmospheric turbulence [5793-7]
C. Schwartz, A. Dogariu

Numerical experiments in atmospheric scintillation correlation for applications in dual channel optical communications [5793-8]
J. Davies, B. Nener, K. Grant, K. Corbett, B. Clare

Modeling of laser beam propagation through turbulent medium [5793-9]
E. Terentiev, F. Shugaev, L. Shtemenko, O. Dokukina, O. Ignateva

ATMOSPHERIC CHARACTERIZATION

Recent developments of optical turbulence measurement techniques [5793-10]
F. Eaton

Atmospheric turbulence studies of a 16 km maritime path [5793-11]

Middle East model of vertical turbulence profile [5793-12]
A. Zilberman, N. Kopeika

Aerosol size distribution variance at different elevations [5793-13]
A. Zilberman, N. Kopeika

PERFORMANCE AND MITIGATION TECHNIQUES

Mitigation of scintillation noise by common mode rejection [5793-15]
K. Grant, K. Corbett, B. Clare, J. Davies, B. Nener

Fundamental performance bounds of phase diversity blind deconvolution algorithm for various diversity polynomials, noise statistics, and scene size [5793-16]
J. Dolne, H. Schall

Free-space optical communications performance in the presence of interfering laser signals [5793-18]
H. Refai, J. Sluss, H. Refai

The transmission of multiple RF signals in free-space optics using wavelength division multiplexing [5793-19]
H. Refai, J. Sluss, H. Refai

Active optical zoom for laser communication [5793-20]
T. Martinez, D. Wick, D. Payne, S. Restaino

LASER PROPAGATION EXPERIMENTS I

Laser propagation through turbulence over land and sea [5793-21]
O. Steinvall, G. Bolander, L. Sjoqvist, M. Petersson, O. Gustafsson, F. Berglund, L. Allard, K. Karlsson, T. Larsson, F. Gustavsson

Scintillation: theory vs. experiment [5793-22]
F. Stromqvist Vetelino, C. Young, L. Andrews, K. Grant, K. Corbett, B. Clare

Mean irradiance: experimental and theoretical results [5793-23]
A. Masino, C. Young, L. Andrews, K. Swanger, F. Stromqvist Vetelino, K. Grant, K. Corbett, B. Clare

Influence of sea-breeze winds on aerosol particle concentration and size distribution for up to 50-km overland distances in the Middle East [5793-24]
S. Bendersky, N. Kopeika, N. Blaunstein
LASER PROPAGATION EXPERIMENTS II

Aperture averaging of optical scintillations in the atmosphere: experimental results [5793-26]
L. Wasiczko, C. Davis

Latest results from the 32 km maritime lasercom link at the Naval Research Laboratory, Chesapeake Bay Lasercom Test Facility [5793-27]

About laser beam spatial fluctuations in random-inhomogeneous media [5793-34]
P. Konyaev, V. Lukin, V. Sennikov, V. Tartakovsky

POSTER SESSION

Simulation of wave structure function through atmospheric propagation [5793-31]
C. Subich, S. Watson, C. Young

Scintillation in moderate to strong optical turbulence along a slant path [5793-32]
F. Thomas, C. Young