

PUBLICATIONS

APL staff members were authors or co-authors of the following unclassified books and technical articles that were recently published:

Anderson DL

The thermal state of the upper mantle: No role for mantle plumes, *Geophys. Res. Lett.* **27**, 3623–3626 (1 Dec 2000).

Barnouin-Jha OS, Cheng AF, Prockter LM, Zuber MT, Smith DE, Neumann G, Garvin J, Robinson M, Veverka J, and Thomas P

Characterizing the regolith of 433 Eros from laser altimeter and imaging, *EOS Trans.* **82**, F805 (2000).

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Chapman CP, Joseph TJ, Merline W, Bierhaus B, Veverka J, Izenberg NR, Robinson M, Bell J, Murchie SL, Cheng AF, McFadden L, and Prockter LM

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Cheng AF, Barnouin-Jha OS, Prockter L M, Cole TD, Guo Y, Zuber MT, Neumann GD, Smith E, Garvin, J, Robinson M, Veverka J, and Thomas P

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Cornish TJ, Ecelberger SA, and Brinckerhoff WB

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Impulsive low energy solar energetic electron and ion onsets, *Trans. AGU* **81**, F961 (2000).

Haggerty DK, Hawkins SE, and Ho GC

Impulsive energetic electron events at 1 AU and correlations with solar observations, *Trans. AGU* **81**, F961 (2000).

Haggerty DK, Roelof EC, Smith CW, Ness NF, Tokar RL, and Skoug RM

Interplanetary magnetic field connection to the L1 Lagrangian orbit during upstream energetic ion events, *J. Geophys. Res.* **105**(A11), 25,123–25,131 (1 Nov 2000).

Hart EF

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Higuchi T, and Ohtani S-I

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McCally RL, Nishiwaki H (Kyoto Univ.), Fabry ME (Albert Einstein
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cine), and Luttj GA (Wilmer Inst.)
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rat retinal and choroidal vasculatures, *Microvasc. Res.* **60**, 281–293
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The shape of 433 Eros from the NEAR-Shoemaker Laser Range-
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PRESENTATIONS

APL staff were among those who gave the following unclassified presentations:

Anderson BJ, and Waters CL

Determining global field aligned currents from iridium system magne-
tometer data, *Dartmouth Space Science Seminar* (14 Nov 2000).

Artis DA, Frank LJ, and Heggstad BK

Scripted operations in the far ultraviolet spectroscopic explorer flight
software, *51st Int. Astronautical Congress*, Rio de Janeiro, Brazil (2–6
Oct 2000).

- Boyle MP, Roberts JC, Wienhold PD, Bao G, and White GJ**
Analytic and experimental results for buckling and post-buckling of orthotropic rectangular sandwich panels, *Symp. on Design and Manufacturing of Composite Structures*, Orlando, FL (3–10 Nov 2000).
- Brinckerhoff WB**
Instrument-enabling technologies, NASA/APL Advanced Technology Development (ATD) Program Review, NASA Headquarters, Washington, DC (8 Dec 2000).
- Fraeman ME**
Power conditioning electronics for spacecraft ULP applications, *9th NASA Symp. on VLSI Design 2000*, Albuquerque, NM (8–9 Nov 2000).
- Hart EF**
The Unicode character–glyph model, *7th Int. Unicode Conf.*, San Jose, CA (5 Sep 2000).
- Hawkins SE, Decker RE, Ho GC, Lario D, and Roelof EC**
Comparison of >40 keV electron events at high and low heliolatitudes: Ulysses/HI-SCALE and ACE/EPAM, *34th Eslab Symp.* (Oct 2000).
- Holdridge ME**
NEAR mission to Eros status and future plans, *21st Space Simulation Conf. 2000*, Annapolis, MD (26 Oct 2000).
- Lew AL**
Miniaturization of satellites, *Space Department Advanced Technology Seminar*, JHU/APL, Laurel, MD (27 Oct 2000).
- Livi S**
Energetic neutral particle sensor for the BepiColombo mission, *IFSI*, Rome, Italy (7 Dec 2000).
- Livi S**
Recent data from the MIMI experiment on the Cassini spacecraft, *MPAe*, Lindau, FRG (27 Nov 2000).
- Martin MN**
A study on high-density flip chip packaging with advanced interconnect technologies for space applications, *9th NASA Symp. on VLSI Design 2000*, Albuquerque, NM (8–9 Nov 2000).
- Raney RK**
Ramifications of Doppler-processing radar altimeters, NASA Goddard Space Flight Center, Greenbelt, MD (20 Nov 2000).
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Ramifications of Doppler-processing radar altimeters, *IEEE Section and Graduate Seminar* (Invited), Department of Geography, University of Maryland, College Park (19 Oct 2000).
- Raney RK**
Doppler processing radar altimeters, the D2P incubator project and their ramifications, NASA Code Y, Headquarters, Washington, DC (6 Dec 2000).
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Doppler-processing radar altimeters and their relevance to the Navy, Office of Naval Research, Washington, DC (20 Dec 2000).
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Advanced radar altimetry and the concerns of NOAA, Brief to the Associate Administrator, NOAA/NESDIS Headquarters, Silver Spring, MD (22 Dec 2000).
- Raney RK, and Porter DL**
WITTEX: Three small co-orbiting radar altimeter satellites, *IX Simp. Latinamericano de Perception Remota*, Puerto Iguazu, Misiones, Argentina (6–10 Nov 2000).
- Rust DM**
STEREO mission science goals, *SECCHI Science Team Workshop*, Easton, MD (7–9 Nov 2000).
- Rust DM**
Solar aspects in space weather operations, *UPOS Team Mtg.*, JHU/APL, Laurel, MD (13 Nov 2000).
- Rust DM, Anderson BJ, and Andrews MD**
Chirality and orientation of flux ropes in filaments and magnetic clouds, *Prominence Research Team Meeting*, Naval Research Laboratory, Washington, DC (2–3 Nov 2000).
- Rust DM, Anderson BJ, and Andrews M**
Helicity in solar ejecta, *SECCHI Science Team Workshop*, Easton, MD (7–9 Nov 2000).
- Santo AG**
Conceptual design of a Mercury orbiting spacecraft, *51st Int. Astronautical Congress*, Rio de Janeiro, Brazil (2–6 Oct 2000).
- Spall JC**
The simultaneous perturbation method for system optimization, *American Soc. for Quality Mtg.*, Linthicum, MD (12 Dec 2000).
- Spall JC, Hill SD, and Stark DR**
Towards an objective comparison of stochastic optimization approaches, *Workshop on Performance Metrics for Intelligent Systems*, Natl. Inst. of Standards and Technology (14–16 Aug 2000).
- Stadter PA**
Challenges in communications for distributed spacecraft systems, *NASA Earth Science Enterprise Technol. Planning Workshop*, Arlington, VA (23–24 Jan 2001).
- Stadter PA**
Crosslink transceiver for integrated navigation and communications in distributed spacecraft systems, *First Joint Internet Workshop*, NASA/GSFC, Greenbelt, MD, (13–15 Nov 2000).
- Strikwerda TE, and Ray JC**
NEAR Mission: G&C system performance at Eros, *SAE Aerospace Control and Guidance Systems Committee Mtg. No. 86*, San Antonio, Texas (3–6 Oct 2000).
- Wilkinson WO**
Thermal/vacuum facility upgrades, *AIAA Working Group on Space Simulation*, NASA Glenn, Sandusky, OH (19 Sep 2000).
- Wiley CE and Huettl B**
Design and development of miniature mechanisms for small spacecraft, *14th Annual AIAA/Utah State University Conf. on Small Satellites*, Logan, UT (21–24 Aug 2000).
- Williams BD**
Thermal vacuum testing of the TIMED spacecraft inside an enclosure in a warm chamber, *21st Space Simulation Conf.* Annapolis, MD (23–26 Oct 2000).
- Wu G (JHU School of Medicine), Ringkamp M (JHU School of Medicine), Campbell JN (JHU School of Medicine), and Meyer RA**
Spontaneous activity develops in c fibers from the L4 dorsal root after a lesion to the L5 spinal nerve in rat, *American Pain Society*, Atlanta, GA (Nov 2000).
- Yongbo L (JHU School of Medicine), Dorsi MJ (JHU School of Medicine), Murinson BB (JHU School of Medicine), Meyer RA, Griffin JW (JHU School of Medicine), and Belzberg AJ (JHU School of Medicine)**
Mechanical hyperalgesia is related to the extent of cutaneous denervation following L5 spinal nerve lesion, *American Pain Society Mtg.* Atlanta, GA (Nov 2000).
- The following papers were presented at the *First S-RAMP Conf.*, Sapporo, Japan (2–6 Oct 2000):
- Cheng CZ, and Lui ATY**
Multiscale coupling processes of substorms.
- Consolini G, and Lui ATY**
Intermittency and wave coupling in magnetospheric tail current disruption.
- Lui ATY**
Multi-scale phenomena in the near-Earth magnetotail.

Nosé M, Lui ATY, Ohtani S-I, Mauk BH, McEntire RW, Williams DJ, Mukai T, and Yumoto K

Acceleration of oxygen ions of ionospheric origin in the near-Earth magnetotail during substorms.

Nosé, M., Ohtani S-I, Takahashi K, Lui ATY, McEntire RW, Williams DJ, Christon SP, and Yumoto K

Ion composition change in the near-Earth plasma sheet during magnetic storms.

Sanchez ER, Doe RA, Lui ATY, Liou K, Shephard S, Ridley A, Sigwarth J, Lyons L, Blanchard G, and Mukai T

Reconnection and convection measurements for different degrees of solar wind-magnetosphere coupling.

Yahnin AG, Kornilov IA, Kornilova TA, Sergeev VA, Lui ATY, Liou K, Meng C-I, Pajunpaa A, Mukai T, Kokubun S, and Frank LA

Do the observations confirm the high-speed flow braking model for substorms?

The following papers were presented at the *Society of Neuroscience 30th Annual Mtg.*, New Orleans, LA (4-9 Nov 2000):

Meyer RA, Wu G (JHU School of Medicine), Ringkamp M (JHU School of Medicine), and Campbell JN (JHU School of Medicine)

Activity-dependent slowing of conduction varies in the terminal arbors of nociceptors in the monkey skin.

Ringkamp M (JHU School of Medicine), Peng YB (JHU School of Medicine), Wu G (JHU School of Medicine), Campbell JN (JHU School of Medicine), and Meyer RA

Nociceptors insensitive to heat may respond vigorously to capsaicin.

Sheth RN (JHU School of Medicine), Mansikka H (JHU School of Medicine), Ringkamp M (JHU School of Medicine), Meyer RA, and Raja SN (JHU School of Medicine)

NT-3+/- mice exhibit blunted responses to nociceptive stimuli but still develop hyperalgesia after nerve injury.

Wu G (JHU School of Medicine), Ringkamp M (JHU School of Medicine), Campbell JN (JHU School of Medicine), and Meyer RA

The terminal arbor of cutaneous nociceptors in monkey follows high frequency electrical stimuli.

The following papers were presented at the *American Geophysical Union 2000 Fall Mtg.*, San Francisco, CA (15-19 Dec 2000):

Alexander CJ, Lee A, Yung Y, Butler B, Hibbitts K, and Paranicas CP

Spatial and temporal modeling of the exosphere of Ganymede using sputtering, sublimation, and molecule migration.

Anderson BJ, and Waters CL

Determining the global distribution of field aligned currents from low Earth orbit satellite constellation data, SA614-06.

Anderson BJ, Waters CL, and Takahashi K

Correlation analysis between low altitude field aligned current distributions and the interplanetary magnetic field for space weather specification, SH22A-17.

Anderson BJ, Waters CL, Greenwald RA, and Ruohoniemi JM

Estimation of ionospheric joule heating from combined iridium and SuperDARN data.

Baker KB, Ruohoniemi JM, Greenwald RA, and Barnes RJ

Determination of a radar clutter boundary from real-time SuperDARN data, SH22A-15.

Baker KB, Walker AM, Pinnock M, Dudeney JR, and Rash JP

Observations of magnetospheric activity during extremely quiet solar wind conditions, SM12B-06.

Brandt PC, Mitchell DG, Ebihara Y, and Roelof EC

Understanding the ring current with IMAGE/HENA, SM72A-21.

Carbary JE, Morrison D, and Romick GJ

Hemispheric comparisons of PMC altitudes, SA71A-09.

Cheng AF, Acuna M, Trombka JI, Ververka J, Yeomans D, and Zuber M

Overview of science results from the Near Earth Asteroid Rendezvous (NEAR), P11B-01.

Cheng CZ, and Lui ATY

Substorm multiscale coupling processes.

Christon SP, Eastman TE, McEntire RW, and Roelof EC

Multispacecraft observations of SPE ion onsets, SH52C-14.

Decker RB

Recent results from the low energy charged particle instruments on Voyager 1 and 2, SH11C-09.

Decker RB, Lario D, Roelof EC, Mitchell DG, and Armstrong TP

Energetic particle observations from the CPME and EPE instruments on IMP-8 during the Bastille Day 2000 Solar Storm event, SH52B-14.

Domingue DL, Robinson M, Carcich B, Joseph J, Thomas P, and Clark BE

Photometric modeling of 433 EROS, P11B-06.

Fahr H-J, Roelof EC, Mitchell DG, Funsten HO, Gruntman MA, and McComas DJ

Upper limits on intensities of energetic 1-100 keV neutral hydrogen atoms generated beyond the heliospheric termination shock: Measurements from IMAGE/HENA/MENA, SH72A-03.

Fahr, H-J, Roelof EC, Mitchell DG, Funsten HO, Gruntman MA, and McComas DJ

Upper limits on the intensity of 1-100 keV neutral hydrogen atoms generated beyond the heliospheric termination shock, SH72A-03.

Fox NJ

The Bastille Day 2000 solar event and its geoeffectiveness: A comparative overview, SH61B-02.

Fox NJ, Sigwarth JB, Greenwald RA, Barnes RJ, and Lester M

Integration of SuperDARN convection maps with POLAR/VIS measurements to determine ionospheric energetics during substorms, SM21A-08.

Greenwald, RA, Ruohoniemi JM, Shepherd SG, and Liou K

A statistical model of high-latitude convection referenced to auroral-arc boundaries, SM61D-07.

Haggerty DK, Ho GC, and Hawkins SE

Impulsive energetic electron events at 1 AU and correlations with solar observations, SH52C-17.

Hawkins SE, Pick M, Maia D, and Gold RE

Impulsive electron injection deep into the heliosphere, SH52C-16.

Ho GC, Roelof EC, Gold RE, Hawkins SE, Mason GM, and Dwyer JR

What is the role of energetic electrons in ³He-enhanced SEP events? SH52C-19.

Izenberg NR, Bell JF, Clark BE, Murchie SL, Robinson MS, Domingue DL, Prockter LM, McFadden LK, Wellnitz D, Gaffey MJ, Lucey P, Chapman C, and Ververka J

Comparison of visible color and NEAR-IR spectral properties of Eros' surface using NEAR NIS and MSI data, P113-05.

Kane MR, Williams DJ, Mauk BJ, Roelof EC, McEntire RW, and Krimigis SM

A Galileo and Voyager synthesis of Jovian energetic particle observations, SM61C-11.

Ku HC, Sibeck DG, and Wing S

Three-dimensional MHD simulation of the magnetosheath plasma and magnetic field in the presence of the cusp.

Lario D, Aran A, and Sanahuja B

Stereoscopic view of solar energetic particle events: Observation and modeling, SH71A-07.

- Lario D, Decker RB, and Roelof EC**
Solar energetic particle events related to the Bastille Day 2000 solar storm, SH52B-10.
- Liou K, Takahashi K, and Nosé M**
The source of low-latitude Pi2 pulsations at substorm onset, SM51A-07.
- Lui ATY, and Consolini G**
Multi-scale features in magnetospheric dynamics, SM51B-01.
- Meng C-I**
University Partnership for Operational Support (UPOS) operational space weather products development, SH21D-06.
- Meng C-I**
Morphology and mechanism of large-scale auroras, SM11C-03.
- Morgan F, Yee J-H, and Romick GJ**
Analysis of optical spectra of high altitudes in the polar cap, SA52A-05.
- Murchie SL, Ververka J, Robinson M, Thomas P, Bell JE, Izenberg N, Chapman C, Harch A, Bell M, Carcich B, Cheng AF, Clark B, Domingue DL, Farquhar R, Gaffey M, Hawkins SE, Joseph J, Kirk R, Lucey P, McFadden L, Merline W, Miller J, Owen W, Peterson C, Prockter LM, Warren J, Wellnitz D, Williams B, Yeomans D, and Bussey B**
Imaging and infrared spectroscopy results from NEAR MSI and NIS at EROS, P11B-03.
- Newell PT, Liou K, and Meng C-I**
Auroral power during substorms: A Polar UVI based superposed epoch analysis, SM71A-22.
- Nosé M, Ohtani S-I, Takahashi K, Lui ATY, McEntire RW, Williams DJ, Christon SP, and Yumoto K**
Ion composition of the near-Earth plasma sheet in storm and non-storm intervals, SM22C-05.
- Ohtani S-I, Yamaguchi R, Nosé M, Lui ATY, and Yumoto K**
Tail substorm dynamics associated with pseudo-substorm onsets, SM21A-01.
- Paranicas CP, Carlson RW, and Johnson RE**
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- Paxton LJ, Morrison D, Strickland DJ, Christensen AB, Meng C-I, Crowley G, and McHarg MG**
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- Prockter LM, Thomas P, Joseph J, Robinson M, Milne A, Bussey DJB, Ververka J, Murchie SL, and Cheng AF**
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- Roelof EC, Mitchell DG, Brandt PC, and Demajistre R**
Importance of energetic neutral atom emission from the exosphere: IMAGE/HENA, SM72A-19.
- Ruohoniemi JM, Baker KB, Fejer BG, and Saka O**
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- Rust DM, Anderson BJ, and Andrews MD**
Correlation of CME features with interplanetary magnetic disturbances observed by the NEAR Mission, SH72B-04.
- Shepherd SG, Ruohoniemi JM, Greenwald RA, and Baker KB**
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- Shetter RE, Cinquini L, Hall SR, Madronich S, Lloyd SA, Swartz WH, Kusterer TL, and Anderson DE**
Comparison of photolysis frequencies determined by Scanning Actinic Flux Spectroradiometry (SAFS) with different radiative transfer models during the SOLVE campaign.
- Shue J, and Song P**
The location and shape of the magnetosphere, SH52D-05.
- Shue J, Newell PT, Liou K, and Meng C-I**
The quantitative relationship between auroral brightness and each of the solar wind density and velocity, SM71A-01.
- Sibeck DG, Decker RB, Mitchell DG, Lazarus AJ, Lepping RP, Ogilvie KW, and Szabo A**
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- Simnett GM, and Roelof EC**
Relative timing of near-relativistic electron injection, electromagnetic emission, and the CME in the Bastille Day 2000 flare, SH61B-10.
- Sotirelis TS, Newell PT, Carbary JF, Ruohoniemi JM, Skura JP, Liou K, and Meng C-I**
Multiple data-source sensing of the auroral oval, SA61A-07.
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- Talaat ER, Yee J-H, and Zhu X**
Studies of the 6.5 day wave, SA11A-17.
- Voss HD, Mitchell DG, Roelof EC, Hsieh KC, Curtis CC, Hamilton DC, Walt M, and Toll W**
IMAGE/HENA/SSD low-altitude ENA images in coordination with high resolution pitch angle observations from Polar/SEPS, SM72A-20.
- Walker ADM, Baker KB, Pinnock M, and Rash JPS**
Observations of magnetospheric activity during extremely quiet solar wind conditions.
- Williams DJ, McEntire RW, and Mauk BH**
Diagnosis of Ganymede's space environment with energetic particles: Results from Galileo's G28 encounter, P71A-02.
- Wing S, and Newell PT**
Double cusp: A prediction and a confirmation, SM62B-06.
- Wing S, Skura J, and Newell PT**
Magnetotail assimilation model.
- Yee J-H, Talaat ER, and Zhu X**
Atomic oxygen distribution in the mesosphere and lower thermosphere, SA71A-06.
- Yee J-H, Vervack RJ, DeMajistre R, Lloyd SA, and Lumpe J**
MSX/UVISI stellar occultation observations of ozone during the SOLVE campaign, A71A-15.
- Zaharia S, Cheng CZ, and Wing S**
Three-dimensional quasi-static equilibria of magnetosphere.
- Zanetti LJ, and Anderson BJ**
Space weather effects on low altitude spacecraft and environment, SA51A-11.

Zhu X

Diagnosis of wave dynamics for migrating tides in the mesosphere and lower thermosphere, SA72A-04.

COLLOQUIA

The following topics were recently presented at the weekly APL Colloquium (*part of the Millennial Challenges: Colloquium 2000 series):

19 January 2001

Human Settlement of Other Planets, A Andreadis, University of Massachusetts Medical School

26 January 2001

Software Systems for Vision-based Interaction and Control, GD Hager, JHU Center for Computer Integrated Surgical Systems and Technology

2 February 2001

Heterostructures and Spintronics, C-L Chien, JHU Dept. of Physics and Astronomy

9 February 2001*

The Dilemma of Nuclear Weapons in the 21st Century, ADM S Turner, CIA (ret)

16 February 2001

Medical Applications of One APL Technology: Coming Full Circle, RW Flower, University of Maryland

2 March 2001

Bioterrorism, TL Guidotti, George Washington University

9 March 2001

Security-Enhanced Linux, P Loscocco, NSA

16 March 2001

From Red Dropouts to Pale Blue Dots: The Science of the Origins Theme, A Kinney, NASA Headquarters

23 March 2001

Transnational Crime and Corruption, L Shelley, American University

30 March 2001

NEAR at Eros, A Cheng, APL

6 April 2001

Intelligent Micromachine Initiative, J Allen, Sandia National Laboratory

20 April 2001

A Promising Model to Investigate Brain Plasticity, K Peusner, George Washington University School of Medicine

27 April 2001

Extra Dimensions and Weakness of Gravity, R Sundrum, JHU Dept. of Physics and Astronomy

U.S. PATENTS (2000)

APL staff received the following U.S. patents during 2000:

Radcliffe ST, and Holm ED

System for Measuring Average Speed and Traffic Volume on a Roadway, No. 6,011,515 (4 Jan): A vehicular traffic sensor capable of measuring traffic speed and volume in all weather conditions and at a low installed cost for wide-area traffic monitoring.

Guyton DL, Hunter DG, Patel SN, Sandruck JC, and Fry RL

Eye Fixation Monitor and Tracker, No. 6,027,216 (22 Feb): Apparatus and method are provided for assessing the direction of fixation

of an eye by detecting polarization-related changes in light retroreflected from the fundus of the eye.

Strohbehn K

Video-Centroid Integrated Circuit, No. 6,058,223 (2 May): An analog, single integrated circuit for providing centered video images.

Roberts JC, Biermann PJ, and Corvelli AA

Apparatus and Methods for Embedding a Biocompatible Material in a Polymer Bone Implant, No. 6,058,590 (9 May): Apparatus and methods for partially embedding a biocompatible material, such as a titanium coil, in the surface of a polymer bone implant to provide a porous coating for bone cells to grow through, thereby promoting long-term stabilization of the implant.

Wozniak JJ, and Robertson MC

Viscoelastic Memory Means and Flow Control Valve and Use Thereof to Produce a Single-Use, Auto-Destruct Injection Device, No. 6,080,461 (27 Jun): Solid disks of polyethylene oxide are radiation cross-linked to instill viscoelastic memory. The disks are then pierced with a needle, heated, and cooled and the needle removed to form disks containing a flow orifice in each, which, upon contact with water, will revert to solid disks. A disk with a flow orifice made as just described when used as a memory flow control valve in a conventional injection device will produce a syringe with a single-use, auto-destruct capability.

Guo Y, Ko HW, Nelson CV, and White DM

Imaging Objects in a Dissipative Medium by Nearfield Electromagnetic Holography, No. 6,084,412 (4 Jul): A unique time-domain electromagnetic system and data processing technique which, using low-frequency electromagnetic fields, can localize, in three dimensions, the position of buried metallic objects.

Biermann PJ, Roberts JC, and Ecker JA

Bone Substitute for Training and Testing, No. 6,116,911 (12 Sep): A bone substitute that drills and cuts like bone for use in training and testing comprising an inner core of a foamable polymer or other soft material and an outer shell of a polymer such as an epoxy resin with a particulate filler such as aluminum oxide or silicon carbide added thereto together with, in some cases, titanium oxide to form a slurry for casting or molding around the inner core.

Schwartz PD, Le BQ, Lew AL, and Suter JJ

Topology for Individual Battery Cell Charge Control in a Rechargeable Battery Cell Array, No. 6,157,167 (5 Dec): A microprocessor-based charge control architecture which provides individual battery cell charge control in order to insure an equality of charge among all cells in a rechargeable battery cell array during a single charge cycle.

FOREIGN PATENTS (2000)

APL staff received the following foreign patents during 2000:

Biermann PJ, Roberts JC, and Corvelli AA

Orthopedic Implant, No. 64679 (Singapore) (20 Jun): An orthopedic implant comprising a thermoplastic polymer or a composite comprising, in one embodiment, polyetheretherketone reinforced with 10% by volume of glass fibers, with an elastic modulus approximating the elastic modulus of bone.

Lew AL, Suter JJ, and Le BQ

Integrated Power Source Layered with All Polymer Rechargeable Batteries, Solar Cells, RF Charger, Charge Control and Indicator, No. 49360 (Singapore) (22 Aug): A self-contained, small, lightweight, portable, renewable, modular integrated power source. The power source consists of solar cells that are laminated onto a solid-state polymer battery which in turn is laminated onto a substrate containing circuits which manage the polymer battery charging. Charging of the battery can occur via solar energy or, alternatively, via RF coupling.