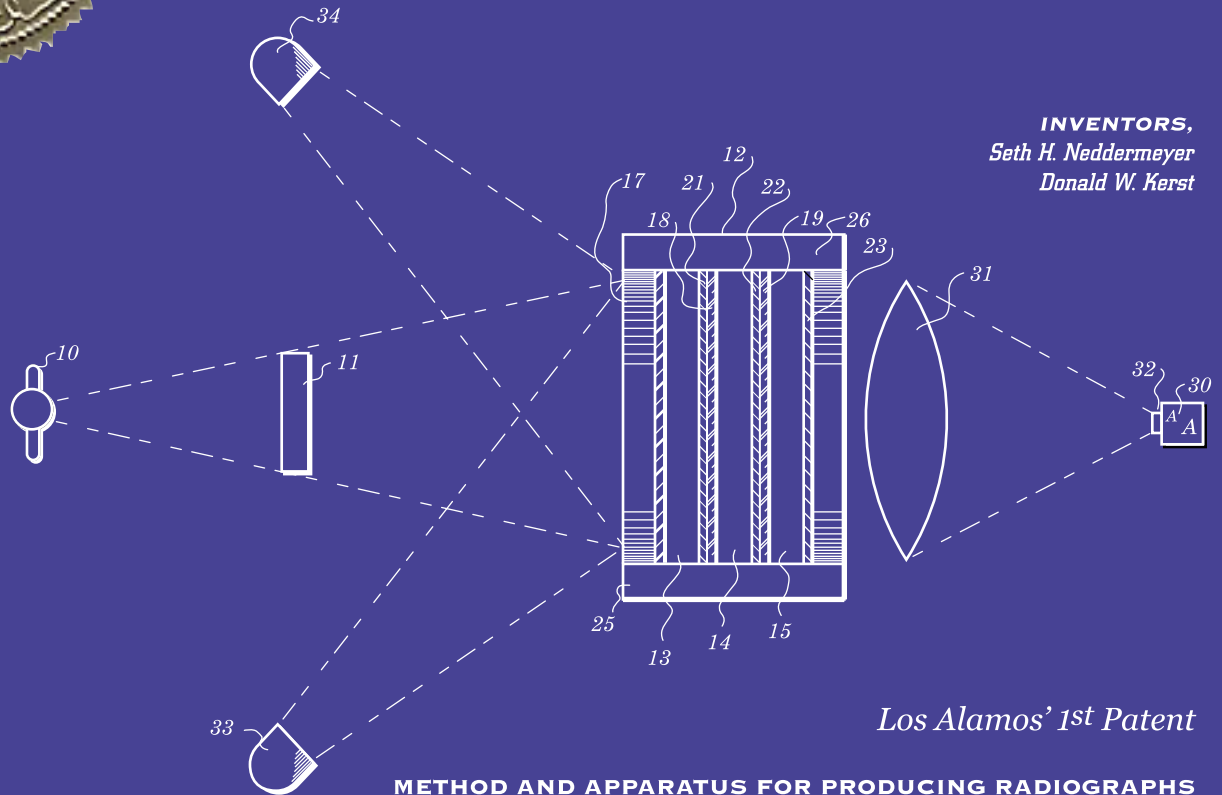




outStanding innOvation

Applauding our innovators



INVENTORS,
Seth H. Neddermeyer
Donald W. Kerst

Los Alamos' 1st Patent

METHOD AND APPARATUS FOR PRODUCING RADIOGRAPHS

Issued April 1947

THE 1999 PATENT & LICENSING AWARDS
Carrying on the tradition of world-changing innovation

*outStanding
innOvation*

Applauding our inventors and entrepreneurs

The 1999 Patent & Licensing Awards

Carrying on the tradition of world-changing innovation

Wednesday, March 1, 2000

Los Alamos National Laboratory, Los Alamos, New Mexico

Masters of Ceremony

Richard Mah

William Eklund



Bravo!

Hurrah!

Kudos!

Accolades!

Encore!

Welcome to the second Annual Patent and Licensing Awards Ceremony. Tonight we celebrate this year's achievements by our outstanding innovators. These achievements include patents issued, copyrights asserted, technologies licensed, royalties received, and entrepreneurial activities pursued.

I am delighted to recognize individual award winners and congratulate them for their important contributions. At Los Alamos National Laboratory we have a reputation for developing technologies that have inherent scientific value. We have also demonstrated through the creativity of our innovators and the diligence of our technology transfer professionals that our work here has economic value. Our reputation for excellence is our most important asset. When we protect our intellectual property through patents and copyrights we protect our reputation. When we license our technologies we enhance it. And when we undertake entrepreneurial activities we capitalize on it.

I commend each of you on your achievements this year and encourage your continued participation in these activities.

Congratulations!

A handwritten signature in black ink that reads "John C. Browne". The signature is written in a cursive, flowing style.

out Standing *inn* Ovation

Evening Program

5:30 p.m. **Joseph F. Salgado**, *Deputy Laboratory Director*
Business, Administration, and Outreach
Los Alamos National Laboratory

Thomas Meyer, *Associate Laboratory Director*
Strategic & Supporting Research
Los Alamos National Laboratory

6:00 p.m. – **Awards Ceremony**

7:00 p.m. **Bill Eklund**, *Director*
Business and Patent Law
Los Alamos National Laboratory

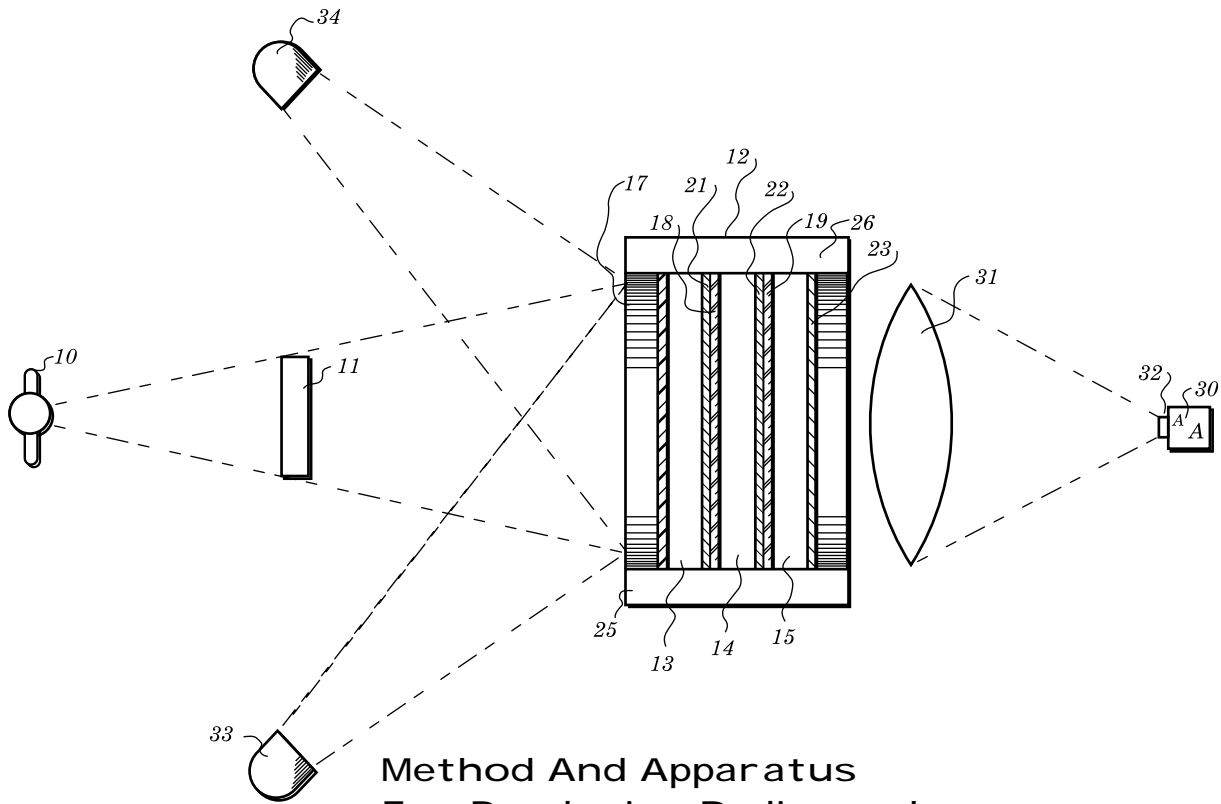
Richard Mah, *Program Director*
Industrial Business Development Program Office
Los Alamos National Laboratory

David Foster, *Program Manager*
Regional Business Development
Industrial Business Development Program Office
Los Alamos National Laboratory

Distinguished Awards Presentations

Distinguished Patent
Distinguished Copyright
Distinguished Licensing
Entrepreneur of the Year

7:00 p.m. – **Reception**
8:30 p.m. Oppenheimer Study Center



Method And Apparatus For Producing Radiographs

This year we once again remind ourselves of the first patent obtained at Los Alamos National Laboratory. It was filed in 1945 in the names of Seth Neddermeyer and Donald Kerst, two original Los Alamos employees who were well-known for their creative and unrestrained experimentations into the explosive compression of materials. The patent covered an apparatus for conducting high-speed x-ray radiography of explosive detonations. No mention of Los Alamos appears in the published patent, as Los Alamos was a "secret city" when the patent issued in 1947. This invention was an early accomplishment of a research program that has continued for some 55 years and for which Los Alamos is internationally renowned. Today this program has culminated in the operation of the Dual Axis Radiographic Hydrodynamic Test facility (DARHT). Phase 1 of DARHT is now fully operational with the completion of the first x-ray machine. Phase 2 is scheduled for completion in 2002 with the installation of the second and more complex pulsed x-ray machine.

Abstracts of Recognized Patents

Lead-Free Percussion Primer Mixes Based on Metastable Interstitial Composite (Mic) Technology

George P. Dixon, Joe A.
Martini, and Don Thompson

A lead-free percussion primer composition comprises a mixture of about 45 wt% aluminum powder with an outer coating of aluminum oxide and molybdenum trioxide powder, or a mixture of about 50 wt% aluminum powder with an outer coating of aluminum oxide and trichlorofluoroethylene powder. The aluminum powder, molybdenum trioxide powder, and trichlorofluoroethylene powder have a particle size of 0.1 mm or less, and preferably a particle size of from about 200–500 angstroms.

Processing of Hydroxylapatite Coatings on Titanium Alloy Bone Prostheses

Michael J. Nastasi, Timothy E.
Levine, James W. Mayer, Vincent
B. Pizziconi

Bone prostheses are fabricated using non-line-of-site ion beam implantation and/or rapid thermal processing to provide improved bonding of layers of hydroxylapatite to titanium alloy substrates

while encouraging bone ingrowth into the hydroxylapatite layers located away from the substrate. The first layer of hydroxylapatite is mixed into the substrate by the ion beam or by rapid thermal annealing, while subsequent layers are heat treated or densified using ion beam implantation to form layers of decreasing density and larger crystallization, with the outermost layers being suitable for bone ingrowth.

Data Embedding Employing Degenerate Clusters of Data Having Differences Less Than the Noise Value

M. T. Sandford II, Theodore G.
Handel

Auxiliary information is embedded into a set of host data, such as a photograph, television signal, facsimile transmission, or identification card. All such host data contain intrinsic noise that allows nearly identical pixels in the host data, with values that differ by less than the noise value, to be manipulated and replaced with auxiliary data. Because the embedding method does not change the elemental values of the host data, the auxiliary data do not noticeably affect the appearance or interpretation of the host data. The embedded auxiliary data can be retrieved easily by an authorized user through a substantially reversed process.

Solid Source MOCVD System

Brian N. Hubert, Xin Di Wu

An MOCVD fabrication system for superconducting and nonsuperconducting oxide films provides a delivery system for the feeding of metalorganic precursors for multicomponent chemical vapor deposition. The delivery system can include multiple cartridges that contain tightly packed precursor materials. The contents of each cartridge can be ground at a desired rate and fed, together with precursor materials, from other cartridges to a vaporization zone and then to a reaction zone within a deposition chamber for thin film deposition.

Method and Apparatus for Varying Accelerator Beam Output Energy

Lloyd M. Young

A coupled cavity accelerator (CCA) accelerates a charged particle beam with rf energy from an rf source. An input accelerating cavity receives the charged particle beam and an output accelerating cavity outputs the charged particle beam at an increased energy. Intermediate accelerating cavities connect the input and the output accelerating cavities to accelerate the charged particle beam. Multiple tunable coupling cavities are arranged so that each one of the

tunable coupling cavities connects an adjacent pair of the input, output, and intermediate accelerating cavities to transfer the rf energy along the accelerating cavities. An output tunable coupling cavity can be detuned to variably change the phase of the rf energy reflected from the output coupling cavity so that regions of the accelerator can be selectively turned off when one of the intermediate tunable coupling cavities is also detuned.

Method and Apparatus for Reducing Solvent Luminescence Background Emissions

Rhett L. Affleck, W. Patrick Ambrose, James N. Demas, Peter M. Goodwin, Mitchell E. Johnson, Richard A. Keller, Jeffrey T. Petty, Jay A. Schecker, and Ming Wu

The detectability of luminescent molecules in solution is enhanced by reducing the background luminescence from impurity species also present in the solution. A light source that illuminates the solution acts to photolyze the impurities so that they do not luminesce in the fluorescence band of the molecule of interest. Molecules of interest may be either carried through the photolysis region in the solution or introduced into the solution beyond the photolysis region.

Blue Light Emitting Thiogallate Phosphor

Robert C. Dye, David C. Smith, Christopher King, Richard T. Tuenge

The composition $\text{RGa}_2\text{S}_4:\text{Ce}_x$, where R is selected from the group consisting of calcium, strontium, barium and zinc, and x is from about 1 to 10 atomic percent provides a crystalline blue-emitting phosphor. The phosphor provided is characterized as having a crystalline microstructure on the size order of from about 10 angstroms to about 10,000 angstroms. The process for preparing the crystalline blue emitting thiogallate phosphor requires depositing onto a substrate by CVD and resultant thin film electroluminescent devices, including a layer of such deposited phosphor on an ordinary glass substrate.

Apparatus for Reducing Solvent Luminescence Background Emissions

Rhett L. Affleck, W. Patrick Ambrose, James N. Demas, Peter M. Goodwin, Mitchell E. Johnson, Richard A. Keller, Jeffrey T. Petty, Jay A. Schecker, and Ming Wu

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Laser Production of Articles from Powders

Gary K. Lewis, John O. Milewski, David A. Cremers, Michael R. Barbe, and Ronald B. Nemeč

Articles are formed directly from materials in particulate form using a laser beam. The materials are melted by the laser beam and deposited at points along a tool path to form an article of the desired shape and dimensions. The tool path and other parameters of the deposition process are established using computer-aided design and manufacturing techniques. The controller consists of a digital computer that directs movement of a deposition zone along the tool path and provides control signals to adjust apparatus functions. Such functions include the speed at which a deposition head moves along the tool path to deliver the laser beam and powder to the deposition zone.

High Magnetic Field Processing of Liquid Crystal Line Polymers

Mark E. Smith, Brian C. Benicewicz, and Elliot P. Douglas

Bulk articles are formed from oriented liquid crystalline thermoset material. The material is characterized by an enhanced tensile modulus parallel to orientation of an applied magnetic field that is at least 25 percent greater than the same material processed in the absence of a magnetic field. This is produced by curing a liquid crystalline thermoset precursor within a high-strength magnetic field of greater than about 2 Tesla. The process is provided together with a resultant bulk article of a liquid crystalline thermoset material processed in the high strength magnetic field.

Remote Possibly Hazardous Content Container Sampling Device

David L. Volz

An apparatus provides for sampling enclosed containers when the contents of the container are unknown. The invention includes a compressed air device capable of supplying air pressure, a device for controlling the amount of air pressure applied, a pneumatic valve, a sampling device with a hollow, sampling insertion needle

suspended therein, and a device to communicate fluid flow between the container and a containment vessel, pump, or direct reading instrument.

Method and Apparatus for Globally Accessible Automated Testing

Scott P. Layne and Tony J. Beugelsdijk

Integrated testing services are shared with a plurality of autonomous remote clients. In the disclosed method, in response to an access request message, a process controller transmits an access-enabling message to the remote client. The access-enabling message includes instructions performable by a remote client to generate test equipment commands. A process controller interprets and transforms these commands into automated test instrument suite commands, which are provided to laboratory modules to perform the indicated tests. Test data results are then obtained and transmitted to the remote client.

Script Identification from Images Using Cluster-Based Templates

Judith G. Hochberg, Patrick M. Kelly, Timothy R. Thomas

A computer-implemented method identifies a script used to create a document. For each script to be identified, a set of training documents is scanned into the computer to store a series of exemplary images representing each script. Pixels forming the exemplary images are electronically processed to define a set of textual symbols corresponding to the exemplary images. Each textual symbol is assigned to a cluster of textual symbols that most closely represents the textual symbol. The cluster of textual symbols is processed to form a representative electronic template for each cluster. A document with a script to be identified is scanned into the computer to form one or more document images representing the script to be identified. Pixels that form the document images are electronically processed to define a set of document textual symbols that correspond to the document images. The set of document textual symbols is compared to the electronic templates to identify the script.

Ignition Methods and Apparatus Using Microwave and Laser Energy

Dennis M. DeFreitas and Albert Migliori

An ignition apparatus for a combustor includes a microwave energy source that emits microwave energy into the combustor, and a laser energy source that emits laser energy into the combustor to produce a plasma that ignites a combustible mixture therein. Preferably, the plasma is a noncontact plasma produced in free space within the combustor spaced away from the combustor wall structure and away from the microwave emitter. In one embodiment, the microwave energy is emitted at a frequency within a resonant response of the combustor, and the laser energy is infrared laser energy.

High Conductance Surge Cable

Matthew M. Murray, Dennis H. Wilfong, and Ralph E. Lomax

A high conductance surge cable for connecting transient voltage surge suppressers to electrical power panels comprises a strip of electrically conductive foil and a length of an electrical conductor electrically attached to the metallic foil along its longitudinal axis. An insulating material covers the strip of electrically conductive foil and the length

of an electrical conductor. For impedance matching purposes, triangular sections can be removed from the ends of the electrically conductive foil at the time of installation.

Particulate Contamination Removal from Wafers Using Plasmas and Mechanical Agitation

Gary S. Selwyn

Particulate contamination is removed from semiconductor wafers using plasmas and mechanical agitation. The present invention includes the use of plasmas with mechanical agitation for removing particulate matter from the surface of a wafer. The apparatus includes a mechanical activator, at least one conducting contact pin for transferring the vibration from the activator to the wafer, clamp fingers that maintain the wafer's position, and means for generating a plasma in the vicinity of the surface of the wafer. All parts of the cleaning apparatus except the mechanical activator and part of the contact pin are contained inside the processing chamber. By exposing a wafer to a plasma and moving the wafer in a direction perpendicular to its surface, the bonding between the particulate matter and the surface may be overcome. Once free of the

wafer surface the particulates become charged by electrons from the plasma and are drawn into the plasma by attractive forces; this prevents them from redepositing. The introduction of a flowing gas through the plasma sweeps the particulates away from the wafer and out of the plasma. The entire surface is cleaned during one cleaning step. The use of an rf plasma to accomplish the particulate removal was found to remove more than 90% of the particulates.

Imaging Bolometer Glen A. Wurden

A radiation-hard, steady state, imaging bolometer employs infrared (IR) imaging of a segmented-matrix absorber of plasma radiation in a cooled-pinhole camera geometry. The bolometer design parameters are determined by modeling the temperature of the foils from which the absorbing matrix is fabricated by using a two-dimensional time-dependent solution of the heat conduction equation. The resulting design provides a steady-state bolometry capability with approximately 100 Hz time resolution, while simultaneously providing hundreds of channels of spatial information. No wiring harnesses are required, as the temperature-rise data is measured via an IR camera. The resulting spatial data may be used to tomographically investigate the profile of plasmas.

Universal Penetration Test Apparatus with Fluid Penetration Sensor

Philip W. Johnson, Joseph F. Stampfer, and Orvil D. Bradley

A universal penetration test apparatus measures resistance of a material to a challenge fluid. The apparatus includes a pad saturated with the challenge fluid. The apparatus includes a compression assembly for compressing the material between the pad and a compression member. The apparatus also includes a sensor mechanism for automatically detecting when the challenge fluid penetrates the material.

High Temperature Superconducting Thick Films

Paul N. Arendt, Xin Di Wu, and Stephen R. Foltyn

A superconducting article includes the following: a flexible polycrystalline metal substrate; a layer of an adhesion layer material upon the surface of the flexible polycrystalline metal substrate; a layer of a cubic oxide material upon the adhesion layer material; the first layer of cubic oxide material deposited by ion-beam assisted deposition; a layer of a buffer material upon the ion-beam assisted deposited cubic oxide material layer; and, a layer of YBCO upon the buffer material

layer. The article has demonstrated J_c 's of 1.3×10^6 A/cm² and I_c 's of 120 amperes across a sample 1-cm wide.

Method and Apparatus for Coherent Electromagnetic Field Imaging Through Fourier Transform Heterodyne

Bradly J. Cooke and Amy E. Galbraith

Objects are imaged through the inverse transformation of a set of Fourier coefficients measured by a detector. The Fourier coefficients are generated by heterodyning the electromagnetic field reflected from an object with a reference electromagnetic field that has had the transverse phase modulated with a Fourier basis set. Doppler imaging of objects is accomplished through temporal frequency filtering of the Fourier coefficients at a plurality of heterodyne intermediate frequencies.

Laser Preheat Enhanced Ignition

James W. Early

Fuel ignition performance is enhanced by preheating the fuel with laser light at a wavelength that is absorbable by the fuel prior to ignition with a second laser.

Sonication Standard Laboratory Module

Tony J. Beugelsdijk, Robert M. Hollen, Tracy H. Erkkila, Lawrence E. Bronisz, Jeffrey E. Roybal, and Michael L. Clark

A standard laboratory module automatically produces a solution of contaminants from a soil sample. A sonication tip agitates a solution containing the soil sample in a beaker while a stepper motor rotates the sample. An aspirator tube connected to a vacuum draws the upper layer of solution from the beaker through a filter and into another beaker. This beaker can thereafter be removed for analysis of the solution. The standard laboratory module encloses an embedded controller providing process control, status feedback information, and maintenance procedures for the equipment and operations within the standard laboratory module.

Plasma Enhanced OMCVD of Thin Film Coating for Polymeric Fibers

Lauren A. Hall, David J. Devlin, and David C. Smith

A plasma enhanced chemical vapor deposition (CVD) process deposits a titanium nitride film on a polymeric substrate. The process described involves placing the polymeric substrate within a CVD chamber evacuated to a pressure

within a range of about 0.1 Torr to about 10 Torr, heating the polymeric substrate to a temperature within a range of about 150°C to about 250°C, introducing a vaporized organometallic compound and ammonia gas into the chamber, generating a plasma within the chamber, and maintaining the polymeric substrate within the chamber for a time sufficient for a layer of titanium nitride to deposit upon the polymeric substrate.

Radiation Monitor for Liquids

James E. Koster and Richard D. Bolton

A radiation monitor for use with liquids utilizes air ions created by alpha radiation emitted by the liquids as its detectable element. A signal plane, held at an electrical potential with respect to ground, collects these air ions. A guard plane or guard ring is used to limit leakage currents. In one embodiment, the monitor is used for monitoring liquids retained in a tank. Other embodiments monitor liquids flowing through a tank and bodies of liquids such as ponds, lakes, rivers and oceans.

Optical Selection and Collection of DNA Fragments

Mary C. Roslaniec, John C. Martin, James H. Jett, and L. Scott Cram

Large (>μg) quantities of clonable, chromosome-specific DNA from a sample of chromosomes are optically selected and collected. Chromosome selection is based on selective, irreversible photo-inactivation of unwanted chromosomal DNA. Chromosomes are processed in a conventional flow cytometry apparatus, but one in which no droplets are generated. All chromosomes in the sample are first stained with at least one fluorescent analytic dye and bonded to a photochemically active species that can render chromosomal DNA unclonable if activated. After passing through analyzing light beam(s), unwanted chromosomes are irradiated using light that is absorbed by the photochemically active species to produce photo-inactivation. As desired chromosomes pass this photoinactivation point, the inactivating light source is deflected by an optical modulator; hence, desired chromosomes are not photoinactivated and remain clonable. The selection and photo-inactivation processes take place on a microsecond timescale. By eliminating droplet formation, chromosome selection rates 50 times greater than possible with conventional chromosome sorters may be obtained. Thus usable quantities of clonable DNA from any source thereof may be collected.

Minimizing Radiation Damage in Nonlinear Optical Crystals

D. Wayne Cooke, Bryan L. Bennett, and Nigel J. Cockroft

Laser-induced damage to nonlinear crystals, such as KTP crystals, is minimized by using various means for electrically grounding the crystals in order to diffuse electrical discharges within the crystals caused by an incident laser beam. In certain embodiments, electrically conductive material is deposited onto or into surfaces of the nonlinear crystals and the electrically conductive surfaces are connected to an electrical ground. To minimize electrical discharges on crystal surfaces that are not covered by the grounded, electrically conductive material, a vacuum may be created around the nonlinear crystal.

Apparatus and Method for Comparing Corresponding Acoustic Resonances in Liquids

Dipen N. Sinha

Liquids are characterized by measuring the speed of sound therein. For example, a direct correlation has been experimentally observed between the octane rating of gasoline and the speed of

sound in a gasoline sample. Therefore, changes in the speed of sound therein can be used as a sensitive parameter for determining changes in composition of a liquid sample. The present apparatus establishes interference patterns within a liquid without requiring the use of very thin, rigorously parallel, ceramic discs but rather through the use of readily-available, piezoelectric transducers attached to the outside surface of the usual container for the liquid and located on the same side in the vicinity of one another. In other words, various receptacle geometries may be employed and the driving and receiving transducers may be located on the same side of the receptacle. The cell may also be constructed of any material that is inert to the liquid under investigation. A single-transducer embodiment, where the same transducer provides the excitation to the sample container and receives signals impressed therein, is also described.

Measuring Short Electron Bunches Using Coherent Smith-Purcell Radiation

Dinh Cong Nguyen

The length of subpicosecond electron bunches is directly determined using a metallic grating formed with groove spacing greater than a length expected for the electron bunches.

The electron bunches are passed over the metallic grating to generate coherent and incoherent Smith-Purcell radiation. The angular distribution of the coherent Smith-Purcell radiation is then mapped to directly deduce the length of the electron bunches.

Water-Soluble Polymers and Compositions Thereof

Barbara F. Smith, Thomas W. Robison, and Joel W. Gohdes

Water-soluble polymers are formed that include functionalization from the following groups: amino groups, carboxylic acid groups, phosphonic acid groups, phosphonic ester groups, acylpyrazolone groups, hydroxamic acid groups, aza crown ether groups, oxy crown ethers groups, guanidinium groups, amide groups, ester groups, aminodicarboxylic groups, permethylated polvinylpyridine groups, permethylated amine groups, mercaptosuccinic acid groups, alkyl thiol groups, and N-alkylthiourea groups.

Method for Quantifying Optical Properties of the Human Lens

Thomas R. Loree, Irving J. Bigio, Joseph A. Zuclich, Tsutomu Shimada, and Karlheinz Strobl

The application of fiber-optic, OMA-based instrumentation provides an in vivo diagnostic tool for the human ocular lens. Rapid, noninvasive and comprehensive assessment of the optical characteristics of a lens using very modest levels of exciting light are described. Typically, the backscatter and fluorescence spectra (from about 300–900-nm) elicited by each of several exciting wavelengths (from about 300–600-nm) are collected within a few seconds. The resulting optical signature of individual lenses is then used to assess the overall optical quality of the lens by comparing the results with a database of similar measurements obtained from a reference set of normal human lenses having various ages. Several metrics have been identified which gauge the optical quality of a given lens relative to the norm for the subject's chronological age. These metrics may also serve to document accelerated optical aging and/or as early indicators of cataract or other disease processes.

Fluid Sampling Tool

Anthony R. E. Garcia, Roger G. Johnston, and Ronald K. Martinez

A tool enables sampling fluid from a closed container. The tool has a fluid collecting portion that is drilled into the container wall to attach it to the wall. The tool has a fluid extracting section that withdraws fluid collected by a fluid

collecting section. The fluid collecting section has a fluted shank with an end configured to drill a hole into a container wall. The shank has a threaded portion for tapping a borehole. The shank is threadably engaged to a cylindrical housing that has an inner axial passageway sealed at one end by a septum. A flexible member is provided with a cylindrical portion and a bulbous portion. The housing can be slid into an inner axial passageway in the cylindrical portion and sealed to the flexible member. The bulbous portion has an outer lip defining an opening. The housing is clamped into the chuck of a drill, the lip of the bulbous section is pressed against a container wall until the shank touches the wall, and the user operates the drill. Wall shavings (kerf) are confined in a chamber formed in the bulbous section when it folds, as the shank advances inside the container. After sufficient advancement of the shank, an O-ring makes a seal with the container wall.

Structure for HTS Composite Conductors and the Manufacture of Same

James D. Cotton and Gilbert N. Riley

A superconducting oxide composite structure includes a superconducting oxide member, a metal layer surrounding the supercon-

ducting oxide member, and an insulating layer of a complex oxide formed in situ adjacent to the superconducting oxide member and the metal layer. This structure is described together with a method for forming such a superconducting oxide composite structure, including encapsulating a superconducting oxide member or precursor within a metal matrix layer from the group of (i) a reactive metal sheath adjacent to the superconducting oxide member or precursor, the reactive metal sheath surrounded by a second metal layer; or (ii) an alloy containing a reactive metal, to form an intermediate product. Also described is the heating of the intermediate product at temperatures and for sufficient time to form an insulating layer of a complex oxide in situ, the insulating layer to the superconducting oxide member, or precursor, and the metal matrix layer.

Time-Resolved Fluorescence Decay Measurements for Flowing Particles Chiranjit Deka and John A. Steinkamp

Time-resolved fluorescence decay measurements for flowing particles is provided. An apparatus and method for the measurement and analysis of fluorescence of individual cells and particles in flow are described. Rapid measure-

ment capabilities of flow cytometry and the robust measurement and analysis procedures of time-domain fluorescence lifetime spectroscopy are combined. A pulse-modulated, CW laser is used to excite the particles. The characteristics and the repetition rate of the excitation pulses can be readily adjusted to accommodate for fluorescence decays with a wide range of lifetimes.

System and Method for Detection of Dispersed

Broadband Signals

Shie Qian and Mark E. Dunham

The presence of dispersed broadband signals is detected in real time. The present invention uses a bank of matched filters for detecting the received, dispersed broadband signals. Each matched filter uses a respective robust time template designed to approximate the dispersed broadband signals of interest, and each time template varies across a spectrum of possible dispersed broadband signal time templates. The received, dispersed broadband signal $x(t)$ is received by each of the matched filters. If one or more matches occur, then the received data is determined to have signal data of interest. This signal data can then be analyzed and/or transmitted to earth for analysis, as desired. The system and method of the present invention will prove extremely useful in many fields, including

satellite communications, plasma physics, and interstellar research. The varying time templates used in the bank of matched filters are determined as follows. The robust time domain template is assumed to take the form $w(t) = A(t) \cos\{2\pi f(t)t\}$. Since the instantaneous frequency $f(t)$ is known to be equal to the derivative of the phase $\phi(t)$, the trajectory of a joint time-frequency representation of $x(t)$ is used as an approximation of $f(t)$.

Epitaxial Oxides on Amorphous SiO_2 on Single Crystal Silicon

Quanxi Jia

A structure is formed including an epitaxial layer of an oxide material such as yttria-stabilized zirconia on a thick layer of amorphous silicon dioxide, having a thickness of at least 500 angstroms, on a single crystal silicon substrate.

Enhancement of Persistent Currents in High T_c Superconductors

Lia Krusin-Elbaum, Alan D. Marwick, Paul W. Lisowski, James R. Thompson, and James F. Ziegler

The current carrying capability of high- T_c superconductor materials is increased. The inventive method includes the irradiation of such superconductors with light par-

ticles, such as neutrons, protons and thermal neutrons that are sufficiently energetic to cause fission of one or more elements in the superconductor material at a dose rate and for a time sufficient to create highly splayed (dispersed in orientation) extended columns of damaged material. These splayed tracks significantly enhance the pinning of magnetic vortices, thereby effectively reducing the vortex creep at high temperatures resulting in increased current carrying capability.

Apparatus and Method for Rapid Detection of Explosives Residue from the Deflagration Signature Thereof

Herbert O. Funsten and David J. McComas

Explosives are rapidly detected from the deflagration signature of explosive residue on an adjacent environment of the explosive. A property inherent to most explosives is their stickiness, which creates a strong tendency for explosive particulate to contaminate the environment of a bulk explosive. An apparatus for the collection of residue particulate, burning of the collected particulate, and measurement of the ultraviolet emission produced thereby, is described. The present invention can be utilized for real-time screening of personnel, cars,

packages, suspected devices, etc., and provides an inexpensive, portable, and noninvasive means for detecting explosives.

Packed Bed Carburization of Tantalum and Tantalum Alloy

Peter C. Lopez, Patrick J. Rodriguez, and Ramiro A. Pereyra

Corrosion-resistant tantalum or tantalum alloy objects are produced. The method includes the steps for placing the object in contact with a carburizing pack, heating the packed object in a vacuum furnace to a temperature such that carbon from the pack diffuses into the object forming grains with tantalum carbide along the grain boundaries, and etching the surface of the carburized object. This latter step removes tantalum carbides from the surface of the carburized tantalum object while leaving the tantalum carbide along the grain boundaries.

High Nitrogen Energetic Material Based Pyrotechnic Compositions

Michael A. Hiskey and David E. Chavez

A low-smoke-producing, pyrotechnic composition includes a high-nitrogen content, low-carbon content energetic material, an oxidizing agent, and a colorant.

Apparatus for Testing for Infection by a Retrovirus

Scott P. Layne and Tony J. Beugelsdijk

An apparatus tests specimens for infection by a retrovirus. The apparatus comprises a process controller, including a communications module for translating user commands into test instrument suite commands, and a means for communicating specimen test results to a user. The apparatus further comprises a test instrument suite, including a means for treating the specimen to manifest an observable result, and a detector for measuring the observable result.

Water-Soluble Polymers for Recovery of Metals from Solids

Barbara F. Smith, Thomas W. Robison, Nancy N. Sauer, and Deborah S. Ehler

A target metal contained in a solid matrix is selectively separated from the solid matrix. This process involves contacting a solid matrix that contains a target metal with an aqueous solution. The aqueous solution includes a water-soluble polymer adapted for complexation with the target metal. The solid matrix is contacted for sufficient time whereby a water-soluble,

polymer-target metal complex is formed. The solution, including the water-soluble, polymer-target, metal complex, is then separated from the solid matrix.

Process for Making Ceramic Bodies Having a Graded Porosity

Kenneth J. McClellan, John J. Petrovic, and Ivar E. Reimanis

Graded porosity ceramics are produced. The process involves the following steps: placing a chosen amount of ceramic powder into a mold; compacting the ceramic powder into a green body; applying at least one sintering aid precursor to at least one chosen surface of the green body; allowing at least one sintering aid precursor to penetrate at least one surface within a chosen volume of the green body; heating the green body whereby the sintering precursor generates a sintering aid; and hot pressing and sintering the heated body at a temperature sufficient for the green body to be transformed into the sintered ceramic object.

Neutron Capture Induced Radiation Treatment of Polymer Materials

Donald J. Rej and Debra A. Wroblewski

A precursor composition is adapted for neutron-capture-induced radiation treatment of the precursor composition, including a polymer matrix that contains dispersed dopant material. The dispersed dopant material is characterized as capable of neutron capture whereupon subsequent in situ irradiation of the polymer matrix can occur; it is further characterized as dispersed so as to provide dopant domain sizes significantly less than the energetic ion range of the dopant material. A process is also provided for in situ irradiation of bulk polymeric articles by first providing a precursor composition adapted for neutron capture induced radiation treatment of the precursor composition, including a polymer matrix that contains dispersed dopant material. The dispersed dopant material is characterized as dispersed so as to provide dopant domain sizes significantly less than the energetic ion range of the dopant material. The precursor composition is then exposed to a source of neutrons.

Reversible Micromachining Locator

Leander J. Salzer and Larry R. Foreman

A locator device includes a locator, a kinematic mount positioned on a conventional tooling machine, a part carrier disposed on the locator, and a retaining ring. The locator has disposed therein a plurality of steel balls, placed in an equidistant position circumferentially around the locator. The kinematic mount includes a plurality of magnets that are in registry with the steel balls on the locator. In operation, a blank part to be machined is placed between a surface of a locator and the retainer ring (fitting within the part carrier). When the locator (with a blank part to be machined) is coupled to the kinematic mount, the part is thus exposed for the desired machining process. Because the locator is removable from the kinematic mount, it is reversed, and reinserted onto the mount for additional machining. Further, the locator can likewise be removed from the mount and placed onto another tooling machine with a properly aligned kinematic mount. Because of the unique design and the use of magnetic forces in the present invention, positioning errors of less than 0.25 micrometer for each machining process can be achieved.

Neutron Guide

Geoffrey L. Greene

A neutron guide has lengths of cylindrical glass tubing with rectangular glass plates properly dimensioned to allow insertion into the cylindrical glass tubing so that a sealed, geometrically precise, polygonal cross-section is formed in the cylindrical glass tubing. The neutron guide provides easier alignment between adjacent sections than do the neutron guides of the prior art.

Fuel Cell Membrane Humidification

Mahlon S. Wilson

A polymer electrolyte membrane fuel cell assembly, with an anode side and a cathode side separated by the membrane, generates electrical current by electrochemical reactions between a fuel gas and an oxidant. The anode side comprises a hydrophobic gas diffusion backing contacting one side of the membrane and hydrophilic areas therein for providing liquid water directly to one side of the membrane through the hydrophilic areas of the gas diffusion backing. In a preferred embodiment, the hydrophilic areas of the gas diffusion backing are formed by sewing a hydrophilic thread through the backing. Liquid water is distributed over the gas diffusion backing in distribution channels that are separate from the fuel distribution channels.

Tapered Pulse Tube for Pulse Tube Refrigerators

Gregory W. Swift and Jeffrey R. Olson

Thermal insulation of the pulse tube in a pulse-tube refrigerator is maintained by optimally varying the radius of the pulse tube to suppress convective heat loss from mass flux streaming in the pulse tube. A simple cone with an optimum taper angle will often provide sufficient improvement. Alternatively, the pulse tube radius r as a function of axial position x can be shaped with $r(x)$ such that streaming is optimally suppressed at each x .

Detection of Concrete Deterioration by Staining

George D. Guthrie, Jr. and James W. Carey

Concentrated aqueous solutions of sodium cobaltinitrite and a rhodamine dye are used to identify concrete that contains gels formed by the alkali-silica reaction (ASR), and to identify degraded concrete, which results in a porous or semipermeable paste due to carbonation or leaching. These solutions present little health or environmental risk, are readily applied, and rapidly discriminate between two chemically distinct gels: K-rich, Na-K-Ca-Si gels are identified by yellow staining, and

alkali-poor, Ca-Si gels are identified by pink staining.

Free Electron Laser with Masked Chicane

Dinh Cong Nguyen and Bruce E. Carlsten

A free electron laser (FEL) includes an accelerator for outputting electron beam pulses; a buncher for modulating each one of the electron beam pulses to form each pulse into longitudinally dispersed bunches of electrons; and a wiggler for generating coherent light from the longitudinally dispersed bunches of electrons. The electron beam buncher is a chicane with a mask for physically modulating the electron beam pulses to form a series of electron beam bunches for input to the wiggler. In a preferred embodiment, the mask is located in the chicane at a position in which each electron beam pulse has a maximum dispersion.

Melt Processing of Bi-2212 Superconductors Using Alumina

Terry G. Holesinger

Superconducting articles and a method are formed where the superconducting phase of an article is $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_y$ (Bi-2212). Alumina is combined with Bi-2212 powder or Bi-2212 precursor

powder and, in order to form an intimate mixture, the mixture is melted and rapidly cooled to form a glassy solid. The glassy solid is comminuted and the resulting powder is combined with a carrier. An alternative to melting is to form the mixture of nanophase alumina and material having a particle size of less than about 10 microns. The powder, with the carrier, is melt processed to form a superconducting article.

Self-Seeded Injection-Locked FEL Amplifier

Richard Sheffield

A self-seeded, free electron laser (FEL) provides a high gain and extraction efficiency for emitted light. An accelerator outputs a beam of electron pulses to a permanent magnet wiggler having an input end for receiving the electron pulses and an output end for outputting light and the electron pulses. An optical feedback loop collects low-power light in a small signal gain regime at the output end of said wiggler and returns the low-power light to the input end of the wiggler while outputting high-power light in a high signal gain regime.

Licensing Growth

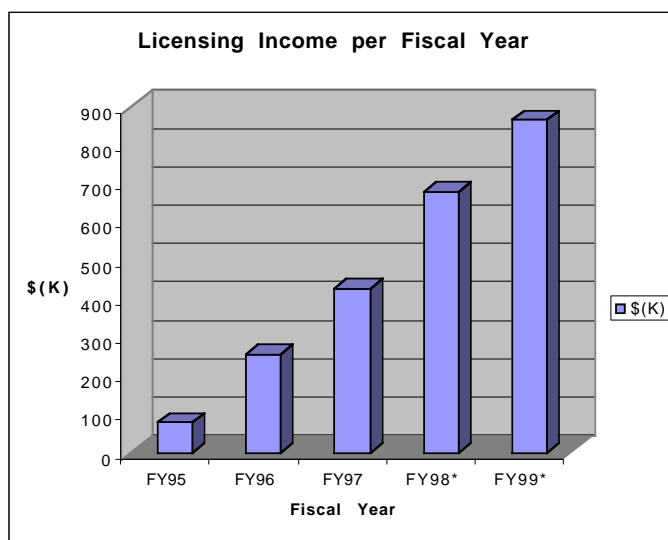
The intellectual property generated by Los Alamos National Laboratory researchers in the form of patents and copyrights is vital to the performance of our stockpile stewardship mission. In addition, the Laboratory has successfully leveraged these intellectual assets to attract funding from federal and private sponsors, form strategic alliances with private industry, and foster lucrative technology transfer activities.

In recent years, federally funded research has become an increasingly important source of innovation needed by U.S. industry to stay competitive. Private industry recognizes that Los Alamos National Laboratory is a reservoir of extraordinary scientific talent and cutting-edge technology. For the past five years, the Laboratory's Licensing Program has facilitated the transfer of LANL-developed

technologies to the private sector through proactive commercialization of our intellectual property portfolio. The new products and services being created by our licensees capitalize on the key technical advances developed by our world-class researchers. In addition to the benefit to U.S. economic competitiveness, these product and service offerings enhance the reputation of the Laboratory as a premier provider of outstanding technology innovations.

The Licensing Program currently manages over 100 active commercial licenses. In addition, LANL's active license portfolio contains over 550 noncommercial licenses with academia, government entities and other nonprofit organizations. In the last few years, the program has witnessed accelerated growth, due in large part to the heightened awareness and active participation of LANL's technical staff in commercialization activities.

Overall, the program has generated over \$3M in licensing income. Eighty-five percent of this income is redistributed to the LANL inventors and to the technical divisions for scientific research and development, technology transfer activities, and education programs at the Laboratory.



Royal ty Recipients

Allander, Krag

Patent:

Single and Double Grid Long
Range Alpha Detectors

Patent:

Radon Detection

Patent:

Background Canceling Surface
Alpha Detector

Bai, Ying

Copyright:

Master Processor Schematic
68y-155913, Version: 2.0

Barton, Jerome

Patent:

Apparatus and Method for
Providing Pulsed Fluids

Birdsell, Stephen

Patent:

Composite Metal Membrane

Bolton, Richard

Patent:

Event Counting Alpha Detector

Patent:

High Gas Flow Alpha Detector

Bounds, John

Patent:

Radon Detection

Patent:

Fan-Less Long Range Alpha
Detector

Patent:

Background Canceling Surface
Alpha Detector

Patent:

High Gas Flow Alpha Detector

Bourret, Steven

Copyright:

ISR Multiplicity Chip (ACTEL),

Version: 4.0

Copyright:

Intelligent Shift Register-Board
Schematic 68y-155947 (ISR)

Copyright:

ISR Shift-Register (XILIN)
(CTRS), Version: 3.0

Copyright:

ISR Shift-Register (XILINX)
(XXISR), Version: 6.0

Copyright:

ISR Shift-Register (ACTEL),
Version: 1.0

Copyright:

ISR Board 68y-155947,
Version: 2.0

Bradley, Jonathan

Patent:

Storage and Retrieval of Large
Digital Images

Brown, Stanley

Copyright:

Data Acquisition Control for
Tomographic Scanner
(DACTGS), Version: 1.0

Burczyk, Leonard

Copyright:

NTvision, Version: 2.0

Butterfield, Kenneth

Copyright:

NAVI-2, Version: 4.0

Cai, Hong

Patent:

DNA Base Mismatch Detection
Using Flow Cytometry

Patent:

DNA Polymorphism Identity
Determination Using Flow
Cytometry

Carey, James

Patent:

Detection of Alkali-Silica Reaction Swelling in Concrete by Staining

Patent:

Detection of Concrete Deterioration by Staining

Castro, Alonso

Patent:

Method for the Detection of Specific Nucleic Acid Sequences by Polymerase Nucleotide Incorporation

Chavez, David

Patent:

High-Nitrogen Energetic Material Based on Pyrotechnic Compositions

Cole, Dean

Patent:

Method Using 5,10,15, 20-Tetrakis (4-Carboxyphenyl) Porphine for Detecting and Treating Cancers of the Lung

Patent:

Method Using 5,10,15, 20-Tetrakis (4-Carboxyphenyl) Porphine for Detecting Cancers of the Lung

Patent:

Method Using 5,10,15, 20-Tetrakis (4-Carboxyphenyl) Porphine for Treating Cancers of the Lung

Cole, Roger

Copyright:

EPICS, Version: 3.8

Copyright:

Hybrid Densitometer Software, Version: 2.0

Collins, Michael

Copyright:

Hybrid Densitometer Software, Version: 2.0

Cucchiara, Alfred

Patent:

Long Range Alpha Particle Detector

Dalesio, Leo R.

Copyright:

EPICS, Version: 3.8

Davenhall, Leisa

Patent:

Composition and Method for Removing Photoresist Materials from Electronic Components

Duan, Yixiang

Patent:

Microwave Plasma Beryllium Sensor

Dye, Robert

Patent:

Composite Metal Membrane

Eaton, Cynthia

Copyright:

EPICS, Version: 3.8

Ehler, Deborah

Patent:

Water-Soluble Polymers for Recovery of Metals from Solids

Ellinwood, Edward

Patent:

Method Using 5,10,15, 20-Tetrakis (4-Carboxyphenyl) Porphine for Detecting and Treating Cancers of the Lung

Patent:

Method Using 5,10,15, 20-Tetrakis (4-Carboxyphenyl) Porphine for Treating Cancers of the Lung

Faber, Vance

Patent:

Digital Color Representation

Patent:

Population Attribute Compression

Gohdes, Joel

Patent:

Water-Soluble Polymers and Compositions Thereof

Gottesfeld, Shimshon

Patent:

Preventing CO Poisoning in Fuel Cells

Greene, Geoffrey

Patent:

Neutron Guide

Guthrie, George

Patent:

Detection of Alkali-Silica Reaction Swelling in Concrete by Staining

Patent:

Detection of Concrete Deterioration by Staining

Halbig, James

Copyright:

Master Processor Schematic 68y-155913, Version: 2.0

Copyright:

New Low Voltage Power Supply Schematic 68y-155924, Version: 2.0

Copyright:

Triple High Voltage Schematic
68y-155941, Version: 2.0

Copyright:

Intelligent Shift Register–Board
Schematic 68y-155947 (ISR),
Version: 68155947

Copyright:

Master Processor Board Main
XILINX Control Chip,
Version: 1.0

Copyright:

ISR Board 68y-155947,
Version: 2.0

Copyright:

Master Processor Board Artwork
68y-155913, Version: 2.0

Hansen, Walter

Copyright:

Intelligent Shift Register–
Application Board Software
(ISR), Version: 1.0

Copyright:

Intelligent Shift Register
Monitor Software (ISR Monitor
Software), Version: 1.0

Hanson, David

Copyright:

Cluster MANipulator
(CLSMAN), Version: 2.0

Harker, William

Copyright:

NCCWIN (English Version:),
Version: 1.3

Copyright:

Neutron Coincidence Counting
for Windows (Russian Version:)
(NCCWIN), Version: 1.3

Copyright:

International Neutron
Coincidence Counting (INCC),
Version: 3.0031

Hill, Jeffrey

Copyright:

EPICS, Version: 3.8

Hiskey, Michael

Patent:

High-Nitrogen Energetic
Material Based on Pyrotechnic
Compositions

Hodson, Richard

Copyright:

NTvision, Version: 2.0

Howat, Andrew

Copyright:

SABRINA, Version: 3.63

Hsu, Hsiao-Hua

Patent:

Neutron Dose Equivalent Meter

Hsue, Sin-Tao

Copyright

Hybrid Densitometer Software,
Version: 2.0

Huchton, Roger

Patent:

Long Range Alpha Particle
Detector

Ianakiev, Kiril

Copyright:

New Low Voltage Power Supply
Schematic 68y-155924,
Version: 2.0

Copyright:

Triple High Voltage Schematic
68y-155941, Version: 2.0

Copyright:

Low Voltage Power Supply
Artwork 68y-155924,
Version: 2.0

Jarvinen, Gordon

Patent:

Ion Exchange Polymers for
Anion Separations

Patent:

Ion Exchange Polymers for
Anion Separations

Jett, James

Patent:

Method for Rapid Base
Sequencing in DNA and RNA

Johnson, Jeffrey

Copyright:

SABRINA, Version: 3.63

Johnston, Roger

Patent:

Method for Establishing the
Presence of Salmonella Bacteria
in Eggs

Kane, Daniel

Patent:

Method and Apparatus for
Measuring the Intensity and
Phase of an Ultrashort Light
Pulse

Keller, Richard

Patent:

Method for Rapid Base
Sequencing in DNA and RNA

Kelly, Thomas

Copyright:

PC/FRAM, Version: 3.3

Kerstiens, Debora

Copyright:

EPICS, Version: 3.8

Klein, M.*Patent:*

Method Using 5,10,15, 20-Tetrakis (4-Carboxyphenyl) Porphine for Detecting and Treating Cancers of the Lung

Patent

Method Using 5,10,15, 20-Tetrakis (4-Carboxyphenyl) Porphine for Treating Cancers of the Lung

Klosterbuer, S.*Copyright:*

TTYMON.O, Version: 1.0

Copyright:

FL.O, Version: 2

Copyright:

Intelligent Shift Register Monitor Software (ISR Monitor Software), Version: 1.0

Kozubal, Andrew*Copyright:*

EPICS, Version: 3.8

Kress, Joel*Copyright:*

CLuster MANipulator (CLSMAN), Version: 2.0

Krick, Merlyn*Copyright:*

NCCWIN (English Version:), Version: 1.3

Copyright:

Neutron Coincidence Counting for Windows (Russian Version) (NCCWIN), Version: 1.3

Copyright:

International Neutron Coincidence Counting (INCC), Version: 3.0031

Lamartine, Bruce*Patent:*

Ultrahigh Vacuum Focused Ion Beam Micromill and Articles Therefrom

Patent:

Depth Enhancement of Ion Sensitized Data

Less, Richard*Patent:*

Multiple Feed Powder Splitter

Patent:

Rotary Powder Feed-Through

Lewis, Gary*Patent:*

Multiple Feed Powder Splitter

Patent:

Rotary Powder Feed-Through

Li, Dequan*Patent:*

Cyclodextrin Polymer Separation Materials

Lunsford, James*Patent:*

Offset Stabilizer for Comparator Output

Ma, Min*Patent:*

Cyclodextrin Polymer Separation Materials

MacArthur, Duncan*Patent:*

Event Counting Alpha Detector

Patent:

Long Range Alpha Particle Detector

Patent:

Single and Double Grid Long Range Alpha Detectors

Patent:

Alternating Current Long Range Alpha Particle Detector

Patent:

Radon Detection

Patent:

Fan-Less Long Range Alpha Detector

Patent:

Background Canceling Surface Alpha Detector

Marlow, William*Patent:*

Apparatus Having Reduced Background for Measuring Radiation Activity in Aerosol Particles

Marrone, Babetta*Patent:*

Optical Probe for the Cytochrome P-450 Cholesterol Side Chain Cleavage Enzyme

Marsh, S.*Patent:*

Ion Exchange Polymers for Anion Separations

Patent:

Ion Exchange Polymers for Anion Separation

Martin, John*Patent:*

Method for Rapid Base Sequencing in DNA and RNA

Martin, Richard*Patent:*

Acoustic Cryocooler

McAtee, James

Patent:

Long Range Alpha Particle
Detector

Patent:

Alternating Current Long Range
Alpha Particle Detector

McFarland, Andrew

Patent:

Apparatus Having Reduced
Background for Measuring
Radiation Activity in Aerosol
Particles

Patent:

Quick-Change Filter Cartridge

Migliori, Albert

Patent:

Intrinsically Irreversible Heat
Engine

Moody, David

Patent:

Method Using 5,10,15, 20-
Tetrakis (4-Carboxyphenyl)
Porphine for Detecting and
Treating Cancers of the Lung

Patent:

Method Using 5,10,15, 20-
Tetrakis (4-Carboxyphenyl)
Porphine for Treating Cancers
of the Lung

Patent:

Method Using 5,10,15, 20-
Tetrakis (4-Carboxyphenyl)
Porphine for Detecting Cancers
of the Lung

Moyzis, Robert

Patent:

Method for Rapid Base
Sequencing in DNA and RNA

Muenchausen, Ross

Patent:

Superconductive Article
Including Cerium Oxide Layer

Murray, William

Copyright:

NAVI-2, Version: 4.0

Neutzler, Jay

Patent:

Annular Feed Air Breathing
Fuel Cell Stack

Nolan, John

Patent:

DNA Base Mismatch Detection
Using Flow Cytometry

Patent:

DNA Polymorphism Identity
Determination Using Flow
Cytometry

Olsher, Richard

Patent:

Neutron Dose Equivalent
Meter

Ortiz, Carlos

Patent:

Apparatus Having Reduced
Background for Measuring
Radiation Activity in Aerosol
Particles

Patent:

Quick-Change Filter Cartridge

Parker, Robert

Copyright:

ALINES.o HC-11, Version: 1.0

Copyright:

DMEN.o HC-11, Version: 1.0

Copyright:

PIMEN.o HC-11, Version: 1.0

Copyright:

DIAG FL.o, Version: 1.0

Copyright:

FL.o, Version: 2.0

Copyright:

ALINEP.o, Version: 1.0

Peachey, Nathaniel

Patent:

Composite Metal Membrane

Pelowitz, David

Copyright:

Multi-Instrument Collect
(MIC.EXE), Version: 1.0

Prettyman, Thomas

Copyright:

Analysis and Rendering Codes
for Tomographic Gamma
Scanning (ARCTGS),
Version: 1.0

Copyright:

Data Acquisition Control for
Tomographic Scanner
(DACTGS), Version: 1.0

Radebaugh, Ray

Patent:

Acoustic Cryocooler

Ratliff, Robert

Patent:

Method for Rapid Base
Sequencing in DNA and RNA

**Rawool-Sullivan,
Mohini**

Patent:

High Gas Flow Alpha Detector

Reass, Pamela

Copyright:

Low Voltage Power Supply
Artwork 68y-155924,

Version: 2.0

Copyright:

Master Processor Board Artwork
68y-155913, Version: 2.0

Robison, Thomas

Patent:

Water-Soluble Polymers for
Recovery of Metal Ions from
Aqueous Streams

Patent:

Water-Soluble Polymers and
Compositions Thereof

Patent:

Water-Soluble Polymers for
Recovery of Metals from Solids

Patent:

Process for the Displacement of
Cyanide Ions from Metal-
Cyanide Complexes

Rodgers, John

Patent:

Apparatus Having Reduced
Background for Measuring
Radiation Activity in Aerosol
Particles

Patent:

Quick-Change Filter Cartridge

Romero, Amos

Copyright:

Intelligent Shift Register–Front
Panel Interface Board Schematic
68y-155970 (ISR), Version: 1.0

Copyright:

Intelligent Shift Register (ISR)
Application Board Schematic
68y-155965, Version: 1.0

Copyright:

Intelligent Shift Register–Board
Layout 68y-155965 (ISR),
Version: 1.0

Copyright:

Intelligent Shift Register (ISR)

Application Board Layout

68y-155965, Version: 1.0

Copyright:

Intelligent Shift Register–Front
Panel Interface Board Layout
68y-155970 (ISR), Version: 1.0

Salazar, Steven

Copyright:

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Panel Interface Board Schematic
68y-155970 (ISR), Version: 1.0

Copyright:

Intelligent Shift Register–Front
Panel Interface Board Layout
68y-155970 (ISR), Version: 1.0

Saltzman, Jeffrey

Patent:

Digital Color Representation

Patent:

Population Attribute
Compression

Sampson, Thomas

Copyright:

PC/FRAM, Version: 2.3

Copyright:

PC/FRAM, Version: 3.3

Sauer, Nancy

Patent:

Water-Soluble Polymers for
Recovery of Metals from Solids

Shera, Brooks

Patent:

Method for Rapid Base
Sequencing in DNA and RNA

Patent:

Ordered Transport and
Identification of Particles

Simpson, Daniel

Patent:

Optical Probe for the
Cytochrome P-450 Cholesterol
Side Chain Cleavage Enzyme

Sinha, Dipen

Patent:

Apparatus and Method for
Non-Contact, Acoustic
Resonance Determination of
Intraocular Pressure

Patent:

Apparatus and Method for
Comparing Corresponding
Acoustic Resonances in Liquids

Patent:

Method for Establishing the
Presence of Salmonella Bacteria
in Eggs

Patent:

Ultrasonic Characterization of
Single Drops of Liquids

Patent:

Method for Noninvasive
Intracranial Pressure
Measurement

Patent:

Noninvasive Identification of
Fluids by Swept-Frequency
Acoustic Interferometry

Smith, Barbara

Patent:

Water-Soluble Polymers for
Recovery of Metal Ions from
Aqueous Streams

Patent:

Water-Soluble Polymers and
Compositions Thereof

Patent:

Water-Soluble Polymers for
Recovery of Metals from Solids

Patent:

Process for the Displacement of Cyanide Ions From Metal-Cyanide Complexes

Snow, Ronny

Patent:

Composite Metal Membrane

Stanciu, Nikolai

Copyright:

Cluster MANipulator (CLSMAN), Version: 2.0

Stewart, Carleton

Patent:

Method for Rapid Base Sequencing in DNA and RNA

Stutz, Roger

Patent:

Ultra-High Vacuum Focused Ion Beam Micromill and Articles Therefrom

Swaminarayan, Sriram

Copyright:

Cluster MANipulator (CLSMAN), Version: 2.0

Sweet, Martin

Copyright:

Intelligent Shift Register–Application Board

Copyright:

Intelligent Shift Register (ISR)–Application Board

Copyright:

Intelligent Shift Register–Application Board Software (ISR), Version: 1.0

Copyright:

Intelligent Shift Register–Board Layout 68y-155965 (ISR), Version: 1.0

Copyright:

Intelligent Shift Register (ISR)–Application Board Layout 68y-155965, Version: 1.0

Copyright:

Intelligent Shift Register–Application Board Fpga (ISR), Version: 1.0

Copyright:

Intelligent Shift Register (ISR)–Application Board Schematic 68y-155965, Version: 1.0

Swift, Gregory

Patent:

Intrinsically Irreversible Heat Engine

Patent:

Acoustic Cryocooler

Taylor, Craig

Patent:

Apparatus and Method for Providing Pulsed Fluids

Terwilliger, Thomas

Copyright:

SOLVE, Version: 1.0

Unkefer, Clifford

Patent:

Optical Probe for the Cytochrome P-450 Cholesterol Side Chain Cleavage Enzyme

Unruh, Wesley

Patent:

Long Range Alpha Particle Detector

Vaccaro, Henry

Copyright:

Wisdom & Sense (W&S)

Van Riper, Kenneth,

Copyright:

SABRINA, Version: 3.63

Voter, Arthur

Copyright:

Cluster MANipulator (CLSMAN), Version: 2.0

Walker, Robert

Copyright:

Cluster MANipulator (CLSMAN), Version: 2.0

West, James

Copyright:

SABRINA, Version: 3.63

Whaley, Thomas

Patent:

Optical Probe for the Cytochrome P-450 Cholesterol Side Chain Cleavage Enzyme

Wheatley, John

Patent:

Intrinsically Irreversible Heat Engine

White, James

Patent:

Digital Color Representation

Patent:

Population Attribute Compression

White, Paul

Patent:

DNA Base Mismatch Detection Using Flow Cytometry

Patent:

DNA Polymorphism Identity Determination Using Flow Cytometry

Wilson, Mahlon*Patent:*

Annular Feed Air Breathing
Fuel Cell Stack

Patent:

Ambient Pressure Fuel Cell
System

Patent:

Polymer Electrolyte Membrane
Humidification with Fiber
Wicks

Windl, Wolfgang*Copyright:*

Cluster MANipulator
(CLSMAN), Version: 2.0

Wolf, Michael*Patent:*

Long Range Alpha Particle
Detector

Wray, William*Patent:*

Apparatus and Method for
Non-Contact, Acoustic
Resonance Determination
of Intraocular Pressure

Wu, Xin*Patent:*

Superconductive Article
Including Cerium Oxide Layer

Distinguished Awards

Distinguished Patent Award

This award honors inventors whose patented invention exhibits outstanding innovation. The Distinguished Patent Award is selected by the Laboratory Fellows and recognizes a premier patent exemplifying significant technical advance, adaptability to public use, and noteworthy value to the mission of Los Alamos National Laboratory. The patent and inventors being recognized for this award are a reflection of Los Alamos' stalwart tradition of superior technical innovation and creativity.

Distinguished Copyright Award

The Distinguished Copyright Award honors the author or authors of disclosed copyrighted materials that are considered extraordinary creations. Nominated copyrights for this distinguished award demonstrate a breadth of commercial applications, potential to create economic value and the highest level of technical excellence. In addition, these works represent vital contributions to the Laboratory's mission and provide reciprocal benefit to the Laboratory programs from which they were developed. Recipients of this award are true bellwethers in their field and represent the Laboratory's reputation for rapid and advanced innovation in the fields of copyrighted works and software.

Distinguished Licensing Award

This award recognizes a technical staff member who proactively engages in commercialization activities at Los Alamos National Laboratory and has had a positive impact on the Laboratory's Licensing Program. This individual, by example, demonstrates outstanding success in transferring LANL-developed technologies to the public and private sectors. In addition, the recipient's commercialization track record has served to enhance the reputations of both the University of California and the Laboratory.

Nominees for this award are evaluated based on the following:

- ongoing active engagement in the licensing process
- active participation in the promotion of their technologies
- number of technologies licensed
- number of licenses per technology
- support for multiple uses of the licensed technologies (private and public).

The recipient of this distinguished award is a champion for the LANL licensing program and is recognized for his or her role in confirming the benefits of proactive technology commercialization activities.

Entrepreneur of the Year

The 1999 Entrepreneur of the Year Awards honor individuals whose hard work, ingenuity, and perseverance have created successful, growing companies in Northern New Mexico. All nominees for this year's award are former Laboratory employees or Laboratory employees on entrepreneurial leave of absence.

These distinguished entrepreneurs have demonstrated substantial financial and personal risk taking, innovative and creative thinking, development and execution of a viable business plan, the highest integrity in their business dealings, and contribution to the regional economy through the creation of wealth and new jobs.

The award winners are pioneers in helping to create a new and vibrant entrepreneurial community in Northern New Mexico. In addition, they serve as successful role models for others considering the pursuit of an entrepreneurial venture in the region.

Contact List

Outstanding innovation is the cornerstone that enables patents, copyrights, licenses, and the ensuing entrepreneurial ventures to occur. The teams cited below are key to the Laboratory's support for the activities required to protect our intellectual property and encourage the formation of new business in the region. For questions or assistance please contact any of these individuals.

Intellectual Property Management

Team Leader

Bruce Lamartine, 665-2366

Copyright Specialist

Irene Vazul, 665-7380

Intellectual Property Specialists

Christine Ramos, 665-6846

Sharon Trujillo, 665-6708

Annabelle Torres, 667-8129

Legal Counsel – Business and Patent Law

Senior Counsel

William A. Eklund, 667-8760

Patent Attorneys

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Bruce H. Cottrell, 667-9168

Samuel M. Freund, 665-3112

Ray G. Wilson, 665-3112

Milton D. Wyrick, 665-3659

Patent Agent

Samuel L. Borkowsky, 665-3111

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Team Leader

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Licensing Executives

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John Mott, 665-0883

David J. Salazar, 665-6697

John Russell, 665-3941

Licensing Associate

Nancy Cameron, 665-3746

License Compliance Officer

Susan Brockway, 665-7677

License Negotiation

Administrator

Debbie Roybal, 665-6704

Technology Commercialization Office

Program Manager

Dave Foster, 665-1578

Research Park Project

Tony Beugelsdijk, 667-3169

Entrepreneurial Initiatives

Sue Fenimore, 665-5376

Entrepreneur Development

Belinda Padilla, 665-9896

Regional Initiatives

Elmer Salazar, 667-5720

Administration

Carole Travis, 665-6756

Industrial Business Development Program Office

<http://www.lanl.gov/partnerships/>

Legal Counsel – Business & Patent Law

<http://www.genlaw.lanl.gov/>

Los Alamos
NATIONAL LABORATORY