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AEROSPACE MEDICINE AND BIOLOGY

A CONTINUING BIBLIOGRAPHY WITH INDEXES

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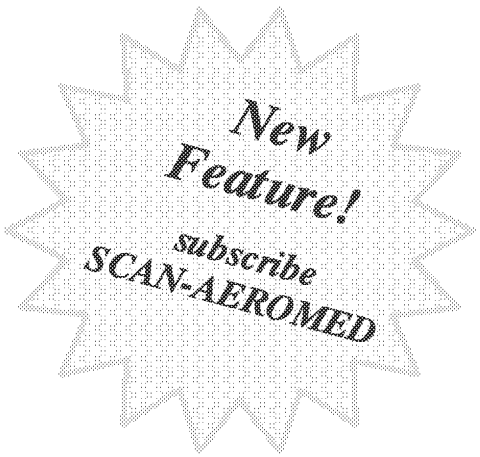

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Typical Report Citation and Abstract

❶ 19970001126 NASA Langley Research Center, Hampton, VA USA
❷ Water Tunnel Flow Visualization Study Through Poststall of 12 Novel Planform Shapes
❸ Gatlin, Gregory M., NASA Langley Research Center, USA Neuhart, Dan H., Lockheed Engineering and Sciences Co., USA;
❹ Mar. 1996; 130p; In English
❺ Contract(s)/Grant(s): RTOP 505-68-70-04
❻ Report No(s): NASA-TM-4663; NAS 1.15:4663; L-17418; No Copyright; Avail: CASI; A07, Hardcopy; A02, Microfiche
❼ To determine the flow field characteristics of 12 planform geometries, a flow visualization investigation was conducted in the Langley 16- by 24-Inch Water Tunnel. Concepts studied included flat plate representations of diamond wings, twin bodies, double wings, cutout wing configurations, and serrated forebodies. The off-surface flow patterns were identified by injecting colored dyes from the model surface into the free-stream flow. These dyes generally were injected so that the localized vortical flow patterns were visualized. Photographs were obtained for angles of attack ranging from 10' to 50', and all investigations were conducted at a test section speed of 0.25 ft per sec. Results from the investigation indicate that the formation of strong vortices on highly swept forebodies can improve poststall lift characteristics; however, the asymmetric bursting of these vortices could produce substantial control problems. A wing cutout was found to significantly alter the position of the forebody vortex on the wing by shifting the vortex inboard. Serrated forebodies were found to effectively generate multiple vortices over the configuration. Vortices from 65' swept forebody serrations tended to roll together, while vortices from 40' swept serrations were more effective in generating additional lift caused by their more independent nature.
❽ Author
❾ *Water Tunnel Tests; Flow Visualization; Flow Distribution; Free Flow; Planforms; Wing Profiles; Aerodynamic Configurations*

Key

1. Document ID Number; Corporate Source
2. Title
3. Author(s) and Affiliation(s)
4. Publication Date
5. Contract/Grant Number(s)
6. Report Number(s); Availability and Price Codes
7. Abstract
8. Abstract Author
9. Subject Terms

AEROSPACE MEDICINE AND BIOLOGY

A Continuing Bibliography (Suppl. 456)

JANUARY 12, 1998

51
LIFE SCIENCES (GENERAL)

19980000073 Oak Ridge National Lab., TN USA

In situ global method for measurement of oxygen demand and mass transfer

Klasson, K. T., Oak Ridge National Lab., USA; Lundbaeck, K. M. O., Arkansas Univ., USA; Clausen, E. C., Arkansas Univ., USA; Gaddy, J. L., Arkansas Univ., USA; [1997]; 13p; In English; 19th; Symposium on Biotechnology for Fuels and Chemicals, 4-8 May 1997, Colorado Springs, CO, USA

Contract(s)/Grant(s): DE-AC05-96OR-22464

Report No.(s): CONF-9705112-1; DE97-005994; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

Two aerobic microorganisms, Saccharomycopsis lipolytica and Brevibacterium lactofermentum, have been used in a study of mass transfer and oxygen uptake from a global perspective using a closed gas system. Oxygen concentrations in the gas and liquid were followed using oxygen electrodes, and the results allowed for easy calculation of in situ oxygen transport. The cell yields on oxygen for S. lipolytica and B. lactofermentum were 1.01 and 1.53 g/g respectively. The mass transfer coefficient was estimated as 10 h(sup (minus)1) at 500 rpm for both fermentations. The advantages with this method are noticeable since the use of model systems may be avoided, and the in situ measurements of oxygen demand assure reliable data for scale-up.

DOE

Microorganisms; Gas Exchange

19980000094 Arizona Univ., Optical Sciences Center, Tucson, AZ USA

Optical Memory Potential of Photoactive Yellow Protein *Final Report, Nov. 1995 - Jun. 1996*

Gibbs, H., Arizona Univ., USA; Khitrova, G., Arizona Univ., USA; Meyer, T., Arizona Univ., USA; Tollin, G., Arizona Univ., USA; Cusanovich, M., Arizona Univ., USA; Jun. 1997; 28p; In English

Contract(s)/Grant(s): F30602-95-C-0100; AF Proj. 4594

Report No.(s): AD-A329466; RL-TR-97-24; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

This contract targeted improved growth of photoactive yellow protein (PYP) and evaluation of its optical signal processing capabilities. The growth experiments were highly successful. Ectothiorhodopsin halophila bacteria were grown and plenty of PYP isolated for the optical experiments. Then recombinant wild-type aop-protein was grown in E. coli and purified; the chromophore was activated as the thiophenol ester which is very reactive with apo-protein. The reconstituted protein has properties indistinguishable from native protein. Much larger quantities of reconstituted recombinant protein can now be made in E. coli in a shorter period of time than when native protein was prepared in E. halophila. This success has made it possible to make mutants and proteins with variant chromophores, resulting in shifts in the absorption maximum and changes in the photocycle kinetics. These studies are at an early stage and should eventually lead to protein tailored to meet the requirements of photochemical device.

DTIC

Optical Memory (Data Storage); Proteins; Optical Data Processing; Bacteria

19980000278 Creighton Univ., Dept. of Biomedical Sciences, Omaha, NE USA

Effects of Weightlessness on Vestibular Development of Quail

Fritzsch, Bernd, Creighton Univ., USA; Bruce, Laura L., Creighton Univ., USA; 1997; 16p; In English

Contract(s)/Grant(s): NAG2-1003

Report No.(s): NASA/CR-97-206380; NAS 1.26:206380; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

The lack of gravity is known to alter vestibular responses in developing and adult vertebrates. One cause of these altered responses may be changes in the connections between the vestibular receptor and the brain. Therefore we propose to investigate the effects of gravity on the formations of connections between the gravity receptors of the ear and the brain in developing quail incubated in space beginning at an age before these connections are established (incubation day three) until near the time of hatching, when they are to some extent functional. This investigation will make use of a novel technique, the diffusion of a lipophilic dye, DiI, in fixed tissue. This technique can thus be used to analyze the connections in specimens fixed in orbit, thus eliminating changes due to the earth's gravity. The evaluation of the data will enable us to detect gross deviations from normal patterns as well as detailed quantitative deviations.
Author
Vertebrates; Gravitational Effects; Brain; Vestibules; Weightlessness; Gravitation

19980000321 Engineering and Economics Research, Inc., Vienna, VA USA
Symposium on Career Opportunities in Biomedical and Public Health Sciences *Final Report*
Sullivan, Walter W., Engineering and Economics Research, Inc., USA; Jul. 28, 1997; 11p; In English; Symposium on Career Opportunities in Biomedical and Public Health Sciences, Houston, TX, USA
Contract(s)/Grant(s): NAG9-932
Report No.(s): NASA/CR-97-206155; NAS 1.26:206155; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche
The goal of the Symposium on Career Opportunities in Biomedical and Public Health Sciences is to encourage minority collegiate and junior and senior high school students to pursue careers in biomedical and public health sciences. The objectives of the Symposium are to: (1) Provide information to participants concerning biomedical and public health science careers in government, academe and industry; (2) Provide information to minority students about training activities necessary to pursue a biomedical or public health science career and the fiscal support that one can obtain for such training; and (3) Provide opportunities for participating minority biomedical and public health role models to interact with participants.
Derived from text
Public Health; Medical Science; Occupation

19980001411
Imaging neurotransmitter uptake and depletion in astrocytes
Tan, Weihong, Iowa State Univ., USA; Haydon, Philip G.; Yeung, Edward S.; Applied Spectroscopy; August, 1997; ISSN 0003-7028; vol. Volume 51, no. no. 8, pp. 1139-1143; In English; Copyright; Avail: Issuing Activity
An ultraviolet (UV) laser-based optical microscope and charge-coupled device (CCD) detection system was used to obtain chemical images of biological cells. Subcellular structures can be easily seen in both optical and fluorescence images. Laser-induced native fluorescence detection provides high sensitivity and low limits of detection, and it does not require coupling to fluorescent dyes. We were able to quantitatively monitor serotonin that has been taken up into and released from individual astrocytes on the basis of its native fluorescence. Different regions of the cells took up different amounts of serotonin with a variety of uptake kinetics. Similarly, we observed different serotonin depletion dynamics in different astrocyte regions. There were also some astrocyte areas where no serotonin uptake or depletion was observed. Potential applications include the mapping of other biogenic species in cells as well as the ability to image their release from specific regions of cells in response to external stimuli.
Author (EI)
Cells (Biology); Imaging Techniques; Optical Microscopes; Molecular Structure; Fluorescence; Dyes

19980001630
In situ dechlorination
Becvar, Erica S. K., Applied Research Associates Inc.; Vogel, Catherine M.; Sewell, Guy; Magar, Victor S.; Military Engineer; August-September, 1997; ISSN 0026-3982; vol. Volume 89, no. no. 586, pp. 60-61; In English; Copyright; Avail: Issuing Activity
The Air Force's Armstrong Laboratory (AL/EQ), the Navy, the EPA, Cornell University, Battelle Memorial Institute, and a contractor formed a multifaceted partnership that promises a major breakthrough in in situ remediation of chlorinated solvent-contaminated soils. This effort aims to validate enhanced in situ reductive dechlorination in the field. A detailed understanding of the process will lead to more efficient, cost-effective, and reliable strategies for bioremediating PCE and related compounds. Further, it will lead to a protocol which to guide the application of enhanced in situ reductive dechlorination.
EI
Acceptor Materials; Donor Materials; Electron Transfer; Biodegradation; Solvents; Chlorination; Pollution Control; SOIls; Ground Water; Water Pollution

19980001669

Study of diagnosis criteria for pathological tissues by laser-induced fluorescence

Lin, Meirong, Nankai Univ., China; Lu, Zhengrong; Fang, Fang; Li, Jia; Zhang, Baozheng; Applied Spectroscopy; August, 1997; ISSN 0003-7028; vol. Volume 51, no. no. 8, pp. 1113-1117; In English; Copyright; Avail: Issuing Activity

It has been confirmed that the differences in fluorescence spectra of normal and pathological biotissues can be used as a sensitive and nondestructive diagnostic probe. However, experiments show that not only are the fluorescence spectral features of different tissues very different but the features of the same tissue under different detection conditions are different too. Therefore, the diagnosis criteria of pathological tissues must be changed in accordance with different spectral features. In this paper, several diagnosis methods using native fluorescence characteristics of biotissues given in existing reports are analyzed. With the fourth harmonic at 266 nm of a Q-switched YAG laser as an excitation source, laser-induced fluorescence (LIF) spectra of native human normal and pathological breast and blood vessel tissues in vitro were measured and studied. According to their spectral characteristics, two diagnosis criteria are suggested: by the fluorescence intensity ratios at several specific wavelengths, cancerous (with p less than 0.001) and benign tumor (p less than 0.005) can be distinguished from the normal tissue; by the fluorescence intensity ratios of the two main peaks, atherosclerotic plague and thrombus (both with p less than 0.005) can be distinguished from normal blood vessel. In order to make comparisons with the results from human cancerous breast tissues, spectra of a model mouse were also observed.

Author (EI)

Laser Induced Fluorescence; Tissues (Biology); Fluorescence; Medical Services; Q Switched Lasers; Diagnosis

19980001825

Concentration of foot-and-mouth disease virus by ultrafiltration

Adikane, H. V., Natl. Chemical Lab., India; Nene, S. N.; Kulkarni, S. S.; Baxi, P. U.; Khatpe, D. S.; Aphale, P. A.; Journal of Membrane Science; August 20, 1997; ISSN 0376-7388; vol. Volume 132, no. no. 1, pp. 91-96; In English; Copyright; Avail: Issuing Activity

Stirred cell, flat sheet and spiral configurations were used to concentrate foot-and-mouth disease virus fermentation broth. The initial screening was carried out in a stirred cell using 50-300 k MWCO ultrafiltration membranes made of different polymers. Acrylate membrane showed highest recovery. No significant effect of MWCO and polymer material was observed on operating fluxes. Flat sheet configuration studies indicated as the CFR increases the recovery increased. No significant change was observed in operating fluxes over seven successive concentration and cleaning cycles. 97% recovery was obtained with the spiral module. Negligible effect on operating fluxes was observed over six successive cycles. A $APEQ 30% saving in process time was observed in comparison with the conventional sedimentation process.

Author (EI)

Viruses; Membranes; Acrylic Resins

19980001922

Effect of medicinal plants on the crystallization of cholesterol

Saraswathi, N. T., Anna Univ., India; Gnanam, F. D.; Journal of Crystal Growth; August 11, 1997; ISSN 0022-0248; vol. Volume 179, no. no. 3-4, pp. 611-617; In English; Copyright; Avail: Issuing Activity

One of the least desirable calcifications in the human body is the mineral deposition in atherosclerosis plaques. These plaques principally consist of lipids such as cholesterol, cholesteryl esters, phospholipids and triglycerides. Chemical analysis of advanced plaques have shown the presence of considerable amounts of free cholesterol identified as cholesterol monohydrate crystals. Cholesterol has been crystallized in vitro. The extracts of some of the Indian medicinal plants detailed below were used as additives to study their effect on the crystallization behavior of cholesterol. It has been found that many of the herbs have inhibitory effect on the crystallization such as nucleation, crystal size and habit modification. The inhibitory effect of the plants are graded as Commiphora mughul greater than Aegle marmeleos greater than Cynoden dactylon greater than Musa paradisiaca greater than Polygala javana greater than Alphinia officinarum greater than Solafolium.

Author (EI)

Cholesterol; Crystallization; Plants (Botany); Calcification; Esters

19980001989

Rotational and translational diffusion of a rodlike virus in random coil polymer solutions

Cush, Randy, Louisiana State Univ., USA; Russo, Paul S.; Kucukyavuz, Zuhal; Bu, Zimei; Neau, David; Shih, Ding; Kucukyavuz, Savas; Ricks, Holly; Macromolecules; August 25, 1997; ISSN 0024-9297; vol. Volume 30, no. no. 17, pp. 4920-4926; In English; Copyright; Avail: Issuing Activity

Depolarized dynamic light scattering was used to measure the translational and rotational diffusion of tobacco mosaic virus (TMV) in dilute and semidilute aqueous solutions of dextran. No phase separation nor aggregation of the TMV particles is observed. The apparent translational and rotational diffusion rates decreased with added dextran. Beyond 6.5% dextran, failures of the continuum (Stokes-Einstein) relation between diffusion and viscosity are found. Temperature dependent studies show that either the solution or the solvent viscosity can describe translation and rotation well at concentrations below the transition. Energies of activation for translational and rotational diffusion are not strongly dependent on dextran concentration.
EI
Light Scattering; Viruses; Diffusion; Liquids; Polysaccharides; Composition (Property)

19980002028
Biodegradation of polymeric material and adhesive properties of cells of microorganisms
Gumargalieva, K. Z., Russian Acad. of Sciences, Russian Federation; Kalinina, I. G.; Mironova, S. N.; Zaikov, G. E.; Chemical Physics Reports; 1997; ISSN 1074-1550; vol. 16, no. 4, pp. 665-673; In English; Copyright; Avail: Issuing Activity

Suitability of Fourier-transform infrared spectroscopy for studying chemical composition of conidial membranes, responsible for hydrophobic properties of the surface is demonstrated. Hydrophobic properties of conidia, controlling adhesion of microorganisms to solid surfaces and subsequent biodegradation, are predicted based on the obtained ratios of the chemical constituents.
Author (EI)
Chemical Composition; Biodegradation; Membranes; Microorganisms

19980002088
Frequency spectrum of the human head-neck system
Charalambopoulos, A., Inst. of Chemical Engineering and High Temperature Chemical Processes, Greece; Dassios, G.; Fotiadis, D. I.; Massalas, C. V.; International Journal of Engineering Science; June, 1997; ISSN 0020-7225; vol. 35, no. 8, pp. 753-768; In English; Copyright; Avail: Issuing Activity

A three-dimensional model of human skull-brain system has been extended to include neck support. The model is based on the assumption of having a hollow sphere (skull), the behavior of which is described by the elasticity solution, filled with an inviscid, irrotational fluid (cerebrospinal fluid), whose motion is described by the wave equation. The neck is approximated by an elastic support which reacts in three dimensions. The problem is solved numerically for the eigenfrequency spectra and the results obtained are compared with the existing experimental ones showing good agreement. The role of the various system parameters is also investigated.
Author (EI)
Frequency Distribution; Human Factors Engineering; Models; Frequency Response; Spectrum Analysis; Systems Analysis; Mathematical Models

19980002114
Adaptive multiresolution analysis based evoked potential filtering
Saatchi, M. R., Sheffield Hallam Univ., UK; Gibson, C.; Rowe, J. W. K.; Alien, E. M.; IEE Proceedings: Science, Measurement and Technology; July, 1997; ISSN 1350-2344; vol. 144, no. 4, pp. 149-155; In English; Copyright; Avail: Issuing Activity

Evoked potentials (EPs) are electrical activities of the brain synchronised with external stimuli. They have proved valuable for the understanding of the functioning of the brain and in investigating several brain related disorders. EPs are usually obscured by the background electroencephalogram (EEG) and thus require appropriate filtering. As the frequency spectra of the EEG and EPs overlap, the application of deterministic filters on their own is usually inadequate. Synchronised averaging improves the signal-to-noise ratio; however it inhibits measurement of the important variations which develop from one EP recording or trial to the next. The presence of these variations also makes an averaged EP a distorted version of an EP which evolves with time. A novel adaptive filtering algorithm based on the wavelet transform method of multiresolution analysis (MRA) was developed and was successfully used for single trial recovery of a type of EP known as the contingent negative variation (CNV). Both simulated and real CNV waveforms' were processed. A technique to evaluate the effectiveness of the developed method was devised and was used to select the best orthogonal filter among Daubechies, Coifman and Symmlet for the adaptive MRA based filtering operation. The technique enabled the magnitude of the background EEG to be reduced by a factor of 5 while preserving the main features of the CNV waveform.
Author (EI)
Image Resolution; Electroencephalography; Brain; Wavelet Analysis

19980002177 Research Inst. of National Defence, Avdelningen foer Humanvetenskap, Stockholm, Sweden

Arm Pain in Connection with G-Stress during Flight or Centrifuge Tests ***Armsmaertor i Samband med hoeg G-Belastning vid Flygning eller Centrifugprov: Enkaetstudie***

Linde, L., Research Inst. of National Defence, Sweden; Feb. 1997; 26p; In Swedish

Report No.(s): PB97-164529; FOA-R-97-00422-720-SE; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

The purpose of the present study was to survey the occurrence of armpain in connection with high G-exposures during flight or centrifuge tests among Swedish fighter or test pilots. A questionnaire was sent to a group of 35 Swedish pilots, who had participated in centrifuge tests between 1990 and 1995 at Brooks Air Force Base. Eighteen respondents declared that they had experienced armpain during flight at one occasion or more. Fourteen claimed that it happened more than three times. The average stated G-stress for reported flight-related armpain was lower than the average G-stress-flight reported for centrifuge-related armpain. The most frequently mentioned plane type in connection with armpain was Gripen.

NTIS

Test Pilots; Acceleration Tolerance; High Gravity Environments; Pain; Arm (Anatomy)

19980002197

'Navitrack' revolutionizes the orthopedic surgery

De Haller, Emmanuel B., Sulzer Orthopedics Ltd., Switzerland; Lang, Christoph; Sulzer Technical Review; 1997; ISSN 0039-4912; vol. 79, no. 3, pp. 4-5; In English; Copyright; Avail: Issuing Activity

Sulzer Orthopedics Ltd. has developed Navitrack, an absolute world novelty in the field of orthopedic surgery. The new navigation system operates real time in the virtual space and thus offers a level of precision and safety that has never been achieved so far during the implantation prostheses. The greater the accuracy of the bone preparation and the positioning of the fixation elements, the longer the success of the operation will be maintained.

EI

Computer Techniques; Surgery; Transplantation; Orthopedics; Virtual Reality; Bones; Prosthetic Devices

19980002353

Nondestructive discrimination of biological materials by near-infrared Fourier transform Raman spectroscopy and chemometrics: Discrimination among hard and soft ivories of African elephants and mammoth tusks and prediction of specific gravity of the

Shimoyama, Masahiko, Hyogo Prefectural Police Headquarters, Japan; Maeda, Hisashi; Sato, Hidetoshi; Ninomiya, Toshio; Ozaki, Yukihiro; Applied Spectroscopy; August, 1997; ISSN 0003-7028; vol. 51, no. 8, pp. 1154-1158; In English; Copyright; Avail: Issuing Activity

This paper demonstrates the usefulness of near-infrared (NIR) Fourier transform (FT) Raman spectroscopy and chemometrics in non-destructive discrimination of biological materials. The discrimination among three kinds of materials - hard ivories, soft ivories, and mammoth tusks - has been investigated as an example. NIR (1064-nm) excited FT-Raman spectra were measured in situ for these materials, and principal component analysis (PCA) of the obtained spectra was carried out over the 1800-400-cm(sup -1) region. The two kinds of ivories are clearly discriminated from one another on the basis of a one-factor plot. It was found that treatment of the Raman data by multiplicative scatter correction (MSC) greatly improves the ability to discriminate. Principal component weight loadings show that the discrimination relies upon the ratio of collagen and hydroxyapatite included in two kinds of ivories. The discrimination among the hard and soft ivories and mammoth tusks was made by a three-factor plot for FT-Raman spectra after the MSC treatments. Partial least-squares regression (PLSR) enabled us to make a calibration model which predicts the specific gravity of the hard and soft ivories.

Author (EI)

Analysis (Mathematics); Analytical Chemistry; Density (Mass/Volume); Fourier Transformation; Infrared Spectroscopy; Law (Jurisprudence); Near Infrared Radiation; Principal Components Analysis; Raman Spectroscopy; Biology; Nondestructive Tests; Regression Analysis

52
AEROSPACE MEDICINE

Includes physiological factors; biological effects of radiation; and effects of weightlessness on man and animals.

19980000244 NASA Ames Research Center, Moffett Field, CA USA
Water Metabolism and Fluid Compartment Volumes in Humans at Altitude. A Compendium of Research (1914 - 1996)
Chou, J. L., California State Univ., USA; Stad, N. J., California State Univ., USA; Gay, E., California State Univ., USA; West, G. I., California State Univ., USA; Barnes, P. R., California State Univ., USA; Greenleaf, J. E., NASA Ames Research Center, USA; Oct. 1997; 122p; In English
Contract(s)/Grant(s): RTOP 199-97-62-13
Report No.(s): NASA-TM-112212; A-977517; NAS 1.15:112212; No Copyright; Avail: CASI; A06, Hardcopy; A02, Microfiche; Abstracts Only; Abstracts Only

This compendium includes abstracts and synopses of clinical observations and of more basic studies involving physiological mechanisms concerning interaction of water metabolism and fluid compartment volumes in humans during altitude exposure. If the author's abstract or summary was appropriate, it was included. In other cases a more detailed synopsis of the paper was prepared under the subheadings Purpose, Methods, Results, and Conclusions. Author and subject indices are provided, plus an additional selected bibliography of related work of those papers received after the volume was being prepared for publication. This volume includes material published from 1914 through 1995.
Author
Bibliographies; Abstracts; Metabolism; Physiology

19980000262 NERAC, Inc., Tolland, CT USA
Positron Emission Tomography: Medical Diagnostic Imaging. (Latest citations from the INSPEC Database)
Dec. 1996; In English; Page count unavailable
Report No.(s): PB97-852867; Copyright Waived; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

The bibliography contains citations concerning the development and assessment of positron emission tomography (PET) used in medical diagnostic imaging. References review the design and performance of PET scanners, detectors, cameras, and modules. Cardiac scans, brain phantoms, tumor activities, and whole-body images are examined. Topics include image resolution and reconstruction, medical image processing, 3D PET, transmission and emission scans, emission contamination, attenuation correction, and patient repositioning errors. (Contains 50-250 citations and includes a subject term index and title list.)
NTIS
Bibliographies; Medical Equipment; Tomography; Imaging Techniques

19980000268 NASA Ames Research Center, Moffett Field, CA USA
Acceleration Tolerance: Effect of Exercise, Acceleration Training; Bed Rest and Weightlessness Deconditioning. A Compendium of Research (1950-1996)
Chou, J. L., California State Univ., USA; McKenzie, M. A., California State Univ., USA; Stad, N. J., California State Univ., USA; Barnes, P. R., California State Univ., USA; Jackson, C. G. R., California State Univ., USA; Ghiasvand, F., NASA Ames Research Center, USA; Greenleaf, J. E., NASA Ames Research Center, USA; Oct. 1997; 52p; In English
Contract(s)/Grant(s): RTOP 199-97-62-13
Report No.(s): NASA-TM-112214; A-978165; NAS 1.15:112214; No Copyright; Avail: CASI; A04, Hardcopy; A01, Microfiche; Abstracts Only; Abstracts Only

This compendium includes abstracts and annotations of clinical observations and of more basic studies involving physiological mechanisms concerning interaction of acceleration, training and deconditioning. If the author's abstract or summary was appropriate, it was included. In other cases a more detailed annotation of the paper was prepared under the subheadings Purpose, Methods, Results, and Conclusions. Author and keyword indices are provided, plus an additional selected bibliography of related work and of those papers received after the volume was prepared for publication. This volume includes material published from 1950-1996.
Author
Acceleration Tolerance; Deconditioning; Physical Exercise; Bed Rest; Weightlessness

19980000279 Baylor Coll. of Medicine, Houston, TX USA

The Role of GH/IGF-I Axis in Muscle Homeostasis During Weightlessness

Schwartz, Robert J., Baylor Coll. of Medicine, USA; 1997; 8p; In English

Contract(s)/Grant(s): NCC9-36

Report No.(s): NASA/CR-97-113063; NAS 1.26:113063; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

Exposure to reduced gravity during space travel profoundly alters the loads placed on bone and muscle. Astronauts suffer significant losses of muscle and bone strength during weightlessness. Exercise as a countermeasure is only partially effective in remedying severe muscle atrophy and bone demineralization. Similar wasting of muscles and bones affects people on Earth during prolonged bed rest or immobilization due to injury. In the absence of weight bearing activity, atrophy occurs primarily in the muscles that act in low power, routine movements and in maintaining posture. Hormonal disfunction could contribute in part to the loss of muscle and bone during spaceflight. Reduced levels of human Growth Hormone (hGH) were found in astronauts during space flight, as well as reduced GH secretory activity was observed from the anterior pituitary in 7-day space flight rats. Growth hormone has been shown to be required for maintenance of muscle mass and bone mineralization, in part by mediating the biosynthesis IGF-I, a small polypeptide growth factor. IGF biosynthesis and secretion plays an important role in potentiating muscle cell differentiation and has been shown to drive the expression of myogenin, a myogenic specific basic helix-loop-helix factor. IGF-I has also been shown to have an important role in potentiating muscle regeneration, repair and adult muscle hypertrophy.
Author

Growth; Hormones; Hormone Metabolisms; Muscles; Weightlessness

19980000282 Texas Univ., Anderson Cancer Center, Houston, TX USA

Role of Dendritic Cells in Immune Dysfunction *Final Report*

Savary, Cherylyn A., Texas Univ., USA; Jun. 30, 1997; 82p; In English

Contract(s)/Grant(s): NCC9-36

Report No.(s): NASA/CR-97-113071; NAS 1.26:113071; No Copyright; Avail: CASI; A05, Hardcopy; A01, Microfiche

Specific aims include: (1) Application of the bioreactor to enhance cytokine-regulated proliferation and maturation of dendritic cells (DC); (2) Based on clues from spaceflight: compare the frequency and function of DC in normal donors and immunocompromised cancer patients; and (3) Initiate studies on the efficiency of cytokine therapy and DC-assisted immunotherapy (using bioreactor-expanded DC) in animal models of experimental fungal infections.
Derived from text

Infectious Diseases; Bioreactors; Cells (Biology); Cancer

19980000293 Baylor Coll. of Medicine, Houston, TX USA

Neocytolysis Contributes to the Anemia of Renal Disease

Rice, Lawrence, Baylor Coll. of Medicine, USA; Alfrey, Clarence P., Baylor Coll. of Medicine, USA; Driscoll, Theda, Baylor Coll. of Medicine, USA; Whitley, Carl E., Baylor Coll. of Medicine, USA; Hachey, David, Baylor Coll. of Medicine, USA; Suki, Wadi, Baylor Coll. of Medicine, USA; 1997; 9p; In English

Contract(s)/Grant(s): NCC9-36

Report No.(s): NASA/CR-97-113068; NAS 1.26:113068; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

Neocytolysis is a recently described physiologic process effecting selective hemolysis of young red blood cells in circumstances of plethora. Erythropoietin depression appears to initiate the process, providing rationale to investigate its contributions to the anemia of renal disease. When erythropoietin therapy was withheld, four of five stable hemodialysis patients demonstrated Cr-51 red cell survival patterns indicative of neocytolysis; red cell survival was short in the first 9 days, then normalized. Two of these patients received oral (13)C-glycine and (15)N-glycine and showed pathologic enrichment of stool porphyrins by the most recently ingested isotope when EPO therapy was held. This confirms selective hemolysis of newly-released red cells. (One patient had chronic hemolysis by isotope studies of blood and stool.) Thus, neocytolysis can contribute to the anemia of renal disease and explains some unresolved issues about such anemia. One implication is the prediction that intravenous bolus erythropoietin therapy is metabolically and economically inefficient compared to lower doses given more frequently subcutaneously.
Author

Hemolysis; Blood Cells; Chromium Isotopes; Erythrocytes; Glycine; Pathology; Anemias; Porphyrins; Blood; Diseases

19980000422 Armed Forces Radiobiology Research Inst., Bethesda, MD USA
AFRRI Reports *Topical Report, Jan. - Jun. 1997*
Aug. 1997; 91p; In English
Report No.(s): AD-A329318; No Copyright; Avail: CASI; A05, Hardcopy; A01, Microfiche

This volume contains AFRRI Scientific Reports SR97-1 through SR97-10 for January-June 1997. The following topics are discussed: The antioxidant troiox enchances the oxidation of 1', 7'-dichlorodluorescin to 2', 7'-dichlorofluorescein; Effects of ondansetron and ICS 205-930 on radiation-induced hypothermia in rats; Regional differences in glial cell modulation of synaptic transmission; Synthetic trehalose dicorynomycolate (S-TDCM), human behavioral effects and radioprotection; Premature chromosome condensation assay for biodosimetry, studies with fission-neutrons; Thiol WR-1065 and disulphide WR-33278, two metabolites of the drug Ethyol (WR-2771), protect DNA against fast neutron-induced strand breakage; Radiomodification by caffeine alone and its combitation with phosphorothioates, In vivo and cell-free studies; MDRl/p-glycoprotein function, (1) Effect of hypotonicity and inhibitors on 123 exclusion, and (2) Effect of hypotonicity and inhibitors on Cl(-) efflux and volume regulation; and Effects of nitrogen mustard alone and in combination with ionizating radiation on guanine.
CASI
Radiobiology; Radiation Protection

19980000704 Department of Energy, Assistant Secretary for Environment, Safety, and Health, Washington, DC USA
Comprehensive Epidemiologic Data Resource
May 1995; 339p; In English
Report No.(s): DOE/EH-0339-Rev-1; DE97-006411; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

The Department of Energy has established the Comprehensive Epidemiologic Data Resource (CEDR) as a public-use data base with the goal of broadening independent access to data collected during studies of the health effects of exposure to radiation and other physical or chemical agents associated with the production of nuclear materials. This catalog is intended for use by any individual interested in obtaining information about, or access to, CEDR data. This catalog provides information that will help users identify and request data file sets of interest.
DOE
Data Bases; Personnel; Epidemiology; Data Systems

19980000973 NERAC, Inc., Tolland, CT USA
Repetitive Motion Disorders. (Latest citations from the ABI/Inform Database)
Jun. 1997; In English; Page count unavailable. Supersedes PB96-864061
Report No.(s): PB97-860845; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

The bibliography contains citations concerning repetitive motion disorders in the workplace. Work-related musculoskeletal disorders, repetitive strain injury, and cumulative trauma disorders and their effects on employee performance and productivity are discussed. Various policies, guidelines, and programs dealing with this problem are reviewed. Solutions and recommendations for reducing this risk within various work environments are provided.
NTIS
Human Factors Engineering; Musculoskeletal System; Injuries; Policies; Risk

19980001270 Texas Univ., Dept. of Orthopedic Surgery, Houston, TX USA
Predicting Bone Mechanical Properties of Cancellous Bone from DXA, MRI, and Fractal Dimensional Measurements *Final Report*
Harrigan, Timothy P., Texas Univ., USA; Ambrose, Catherine G., Texas Univ., USA; Hogan, Harry A., Texas A&M Univ., USA; Shackleford, Linda, NASA Johnson Space Center, USA; Webster, Laurie, NASA Johnson Space Center, USA; LeBlanc, Adrian, Baylor Coll. of Medicine, USA; Lin, Chen, Baylor Coll. of Medicine, USA; Evans, Harlan, Baylor Coll. of Medicine, USA; 1997; 6p; In English
Report No.(s): NASA/CR-97-113064; NAS 1.26:113064; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

This project was aimed at making predictions of bone mechanical properties from non-invasive DXA and MRI measurements. Given the bone mechanical properties, stress calculations can be made to compare normal bone stresses to the stresses developed in exercise countermeasures against bone loss during space flight. These calculations in turn will be used to assess

whether mechanical factors can explain bone loss in space. In this study we assessed the use of T2(sup *) MRI imaging, DXA, and fractal dimensional analysis to predict strength and stiffness in cancellous bone.
Derived from text
Bones; Predictions; Mechanical Properties; Stress Analysis; Dimensional Measurement; Dimensional Analysis

19980001272 Federal Aviation Administration, Medical Div., Fort Worth, TX USA
Bloodborne Pathogens in Aircraft Accident Investigation *Final Report*
Salazar, Guillermo J., Federal Aviation Administration, USA; DeJohn, Charles A., Federal Aviation Administration, USA; Hansrote, Ronald W., Federal Aviation Administration, USA; Key, Otis R., Federal Aviation Administration, USA; Nov. 1997; 14p; In English
Report No.(s): DOT/FAA/AM-97/21; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche

The Occupational Safety and Health Administration (OSHA) amended 29 CFR Part 1910 in 1991 to include regulations addressing occupational exposure to bloodborne pathogens (BBP). The rule affects all employees who have the potential for occupational exposure to these pathogens. An accident scene presents significant challenges in terms of implementing a program which was primarily envisioned to affect personnel in "traditional" healthcare delivery facilities; the OSHA requirements now had to be met in the chaotic, inhospitable, and logistically difficult environment of an aircraft accident site. Unanticipated issues, such as heat-related conditions, performance of physically demanding work in cumbersome gear, biohazard trash disposal from remote sites, and a host of other problems had to be dealt with. The Federal Aviation Administration (FAA), in close cooperation with other Federal agencies, developed a training and administrative program to meet the requirements of the OSHA BBP rule as it relates to the unique environment of an aircraft accident site. The program has been implemented and successfully tested under actual field conditions at the sites of several major aviation accidents that have occurred recently. This article provides observations on the FAA's program and lessons learned from its implementation.
Author
Safety; Aircraft Accidents; Pathogens; Health; Regulations; Education

19980001289 National Inst. for Occupational Safety and Health, Cincinnati, OH USA
Musculoskeletal Disorders and Workplace Factors: A Critical Review of Epidemiologic Evidence for Work-Related Disorders of the Neck, Upper Extremities, and Low Back
Bernard, B. P., National Inst. for Occupational Safety and Health, USA; Jul. 1997; 593p; In English
Report No.(s): PB97-178628; DHHS/PUB/NIOSH-97-141; No Copyright; Avail: CASI; A25, Hardcopy; A06, Microfiche

The term MusculoSkeletal Disorders (MSDs) refers to conditions that involve the nerves, tendons, muscles, and supporting structures of the body. The purpose of the NIOSH document is to examine the epidemiologic evidence of the relationship between selected MSDs of the upper extremity and the low back and exposure to physical factors at work. Specific attention is given to analyzing the weight of the evidence for the strength of the association between these disorders and work forces. Because the relationship between exposure to physical work factors and the development and prognosis of a particular disorder may be modified by psychosocial factors, the literature about psychosocial factors and the presence of musculoskeletal symptoms or disorders is also reviewed. Understanding these associations and relating them to the cause of disease is critical for identifying exposures amenable to preventive and therapeutic interventions.
NTIS
Disorders; Physical Factors; Musculoskeletal System; Workloads (Psychophysiology); Environment Management

19980001299 Texas Univ., Dept. of Kinesiology and Health Education, Austin, TX USA
Effects of Acute and Prolonged Millimeter Wave Radiation Exposure Upon Corneal Endothelial Morphology *Final Report, Jan. - Dec. 1989*
Farrar, Roger P., Texas Univ., USA; Diller, Kenneth R., Texas Univ., USA; Rylander, H. G., Texas Univ., USA; Jun. 1990; 151p; In English
Contract(s)/Grant(s): F33615-87-D-0627; AF Proj. 7757
Report No.(s): AD-A327025; USAFSAM-TR-90-8; No Copyright; Avail: CASI; A08, Hardcopy; A02, Microfiche

The purpose of t his research was determine the injury threshold to the endothelium of the eye upon exposure to 35 GHz microwave radiation. The criterion for injury was defined as a statistically significant increase in mean cell area of the endothelial cell of the cornea. The experiments were conducted at the microwave radiation facility at Brooks AFB, TX. Four cats were each exposed to 10 mW/sq cm for 2 hours/day on alternative days, over a period of 2 weeks, for a total of 6 exposures per cat (12 hours of total exposure per cat). When the digitized images of the endothelial cells, obtained by noncontact specular microscopy, were examined and compared to that of control cats, no change in mean cell area of the endothelium of the exposed eye was detected.

Four additional cats were exposed to 100 mW/sq cm for 2 hours per day on alternative days over a period of 2 weeks for a total of 12 hours of exposure per cat. In a like manner the digitized images of the endothelial cells were compared to those of control cats. No changes in the mean cell size of the endothelial cells were detected, either immediately or up to 2 weeks after the last exposure. The original protocol was to increase the energy deposition to the eye to 500 and 1000 mW/sq cm and subsequently determine the threshold of damage to the endothelium of the eye. We were unable to increase the energy deposition to the cat because a focusing lens for the microwave generator is still being developed for the radiofrequency (RF) facility at Brooks Air Force Base. The dosimetry conducted on site indicated that the cats would receive too much overall RF radiation to allow us to attribute damage to the endothelium of the eye solely to the microwave effects upon the cornea. Therefore, the threshold of damage to the endothelium of the cornea induced by RF radiation, as evaluated by change in mean cell area of the endothelial cells, is above 100 mW/sq cm.
DTIC
Cornea; Endothelium; Eye (Anatomy); Microwaves; Electromagnetic Radiation; Exposure; Injuries

19980002157 Alabama Univ., Div. of Clinical Immunology and Rheumatology, Birmingham, AL USA
Cartilage Marker Detection in Traumatic Knee Injury *Final Report, 1 Jun. 1993 - 31 Oct. 1996*
Gay, R., Alabama Univ., USA; Everson, M. P., Alabama Univ., USA; Apr. 12, 1997; 68p; In English
Contract(s)/Grant(s): R49-CCR-408845
Report No.(s): PB97-161095; No Copyright; Avail: CASI; A04, Hardcopy; A01, Microfiche
This investigator proposes to develop a sensitive and comprehensive immunoassay for the detection of collagen type 2 in synovial fluid of patients with traumatic knee injury. It is anticipated that there will be correlation between the presence and level of collagen 2 in synovial fluid and the extent of traumatic cartilage damage. This proposal will not only facilitate the development of a diagnostic test to evaluate and monitor traumatic knee injury, but will also test the hypothesis that release of collagen type 2 into the synovial fluid may induce the local production of autoantibodies to collagen type 2 and initiate post-traumatic arthritis.
NTIS
Injuries; Knee (Anatomy); Cartilage; Immunoassay; Collagens; Body Fluids

19980002158 Michigan State Univ., East Lansing, MI USA
Injury to Articular Cartilage Following Blunt Impact *Final Report, 1 Jun. 1992 - 31 May 1995*
Haut, R. C., Michigan State Univ., USA; DeCamp, C., Michigan State Univ., USA; Altiero, N., Michigan State Univ., USA; Apr. 12, 1997; 30p; In English
Contract(s)/Grant(s): R49-CCR-503607
Report No.(s): PB97-161129; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche
It is likely that articular cartilage can be damaged without bone fracture. Histochemical, mechanical, and magnetic resonance spectroscopy will be utilized to study the effect of graduated impact levels on the patello-femoral joint of rabbit preparation. The model will be further refined so that protection criteria can be developed and applied in sports medicine, industrial safety, and automotive safety.
NTIS
Injuries; Cartilage; Tolerances (Physiology); Spectroscopic Analysis; Models

19980002159 Duke Univ., Dept. of Biomedical Engineering, Durham, NC USA
Biomechanical Aspects of Spinal Trauma *Final Report, 1 Jun. 1993 - 31 Aug. 1996*
Myers, B. S., Duke Univ., USA; Apr. 12, 1997; 18p; In English
Contract(s)/Grant(s): R49-CCR-402396
Report No.(s): PB97-161145; No Copyright; Avail: CASI; A03, Hardcopy; A01, Microfiche
The goal of this project is to provide qualitative biomechanical information about the geometry, stiffness, energy absorbing capabilities and failure modes of intact cervical and lumbar spines and their component structures. Studies are planned to test several hypotheses. The long term objectives of this work are to reduce the incidence and consequences of neck injuries. These will be accomplished by performing several experimental and computational studies designed to improve understanding of neck injury tolerance: to develop tools which can be used to test new neck injury prevention devices, to use these tools to optimize the design of neck injury protection, and to use a cadaveric injury model to evaluate the diagnostic accuracy of MRI in detecting low Abbreviated Injury Scale Intervertebral disc injuries.
NTIS
Back Injuries; Biodynamics; Spine

53
BEHAVIORAL SCIENCES

Includes psychological factors; individual and group behavior; crew training and evaluation; and psychiatric research.

19980000451 Institute for Human Factors TNO, Soesterberg, Netherlands
Performance Measures for Team Training in a DIS Environment: A Literature Review ***Interim Report Prestatiematen voor Teamtraining in een DIS-Omgeving: Een Literatuurstudie***
Riemersma, J. B. J., Institute for Human Factors TNO, Netherlands; Mooij, A., Institute for Human Factors TNO, Netherlands; Jul. 02, 1997; 38p; In Dutch
Contract(s)/Grant(s): A96/KL/354
Report No.(s): TM-97-A049; TD97-0225; Copyright; Avail: Issuing Activity (TNO Human Factors Research Inst., Kampweg 5, 3769 De Soesterberg, Netherlands), Hardcopy, Microfiche

In this literature review the question is answered whether and in which way performance measures can be developed for team training purposes in networked simulator environments. For this purpose, developments in the areas of networked simulation, collective training and exercising of teams, and present use of performance-measuring systems are described. It is shown that development and effective use of performance measures for the enhancement of training results is possible when the training is structured and is aimed at explicitly formulated training objectives.
Author
Education; Teams; Augmentation; Physical Exercise; Performance Tests

54
MAN/SYSTEM TECHNOLOGY AND LIFE SUPPORT

Includes human engineering; biotechnology; and space suits and protective clothing. For related information see also 16 Space Transportation.

19980000054 NERAC, Inc., Tolland, CT USA
Man-machine Interface Systems. (Latest citations from the INSPEC Database)
Apr. 1997; In English; Page count unavailable. Supersedes PB96-857321
Report No.(s): PB97-858153; Copyright Waived; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

The bibliography contains citations concerning the theory and applications of man-machine system technologies. Development and validation tools are described. Cognitive and psychological effects of man-machine interfaces are discussed. The importance of reliable, fail-safe design is emphasized. Applications include mobile robots and manipulators, control of prosthetic devices, nuclear power plant control systems, manufacturing and process controls, and aircraft cockpits.(Contains 50-250 citations and includes a subject term index and title list.)
NTIS
Bibliographies; Man Machine Systems; Robots

19980000069 Technische Univ., Tele-Informatics and Open Systems Group, Twente, Netherlands
Man-Machine Interaction. Back to Basics? The Command Line Concept Reviewed: TWAIO Final Report
Bouwens, P. J., Hollandse Signaalapparaten N.V., Netherlands; Nov. 14, 1996; ISSN 1381-3625; 68p; In English
Report No.(s): PB97-190292; CTIT-TR-96-47; Copyright Waived; Avail: CASI; A04, Hardcopy; A01, Microfiche

In an environment where information is important, great care must be taken to ensure that no information is lost. At Signaal, systems present (among others) radar information. After reading some literature and talking to some people, the authors came to the conclusion that the old-fashioned command line as they know it in UNIX systems for example, is a good way to interact in the case of the Signaal systems. Since the old fashioned command line, on its own, is not something to get away with for a designers course, features that would, among others, improve the user friendliness, error sensitivity, and input speed, were proposed. This resulted in a formal specification and a first prototype of a COmmand Line Tool (or COLT). This COLT can be integrated with existing programs.
NTIS
Command and Control; Human-Computer Interface; Data Systems; Display Devices

19980000267 Texas Woman's Univ., Houston, TX USA

Applying Space Technology to Enhance Control of an Artificial Arm

Atkins, Diane, Texas Woman's Univ., USA; Donovan, William H., Texas Woman's Univ., USA; Novy, Mara, Texas Woman's Univ., USA; Abramczyk, Robert, Texas Woman's Univ., USA; [1997]; 6p; In English

Contract(s)/Grant(s): NCC9-36

Report No.(s): NASA/CR-97-113069; NAS 1.26:113069; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche

At the present time, myoelectric prostheses perform only one function of the hand: open and close with the thumb, index and middle finger coming together to grasp various shaped objects. to better understand the limitations of the current single-function prostheses and the needs of the individuals who use them, The Institute for Rehabilitation and Research (TIRR), sponsored by the National Institutes of Health (August 1992 - November 1994), surveyed approximately 2500 individuals with upper limb loss. When asked to identify specific features of their current electric prosthesis that needed improvement, the survey respondents overwhelmingly identified the lack of wrist and finger movement as well as poor control capability. Simply building a mechanism with individual finger and wrist motion is not enough. Individuals with upper limb loss tend to reject prostheses that require continuous visual monitoring and concentration to control. Robotics researchers at NASA's Johnson Space Center (JSC) and Rice University have made substantial progress in myoelectric teleoperation. A myoelectric teleoperation system translates signals generated by an able-bodied robot operator's muscles during hand motions into commands that drive a robot's hand through identical motions. Farry's early work in myoelectric teleoperation used variations over time in the myoelectric spectrum as inputs to neural networks to discriminate grasp types and thumb motions. The resulting schemes yielded up to 93% correct classification on thumb motions. More recently, Fernandez achieved 100% correct non-realtime classification of thumb abduction, extension, and flexion on the same myoelectric data. Fernandez used genetic programming to develop functions that discriminate between thumb motions using myoelectric signal parameters. Genetic programming (GP) is an evolutionary programming method where the computer can modify the discriminating functions' form to improve its performance, not just adjust numerical coefficients or weights. Although the function development may require much computational time and many training cases, the resulting discrimination functions can run in realtime on modest computers. These results suggest that myoelectric signals might be a feasible teleoperation medium, allowing an operator to use his or her own hand and arm as a master to intuitively control an anthropomorphic robot in a remote location such as outer space.

Derived from text

Aerospace Engineering; Controllability; Robotics; Real Time Operation; Human Body; Position (Location); Neural Nets

19980000560 NERAC, Inc., Tolland, CT USA

Video Display Terminals: Operator Protection and Ergonomics. (Latest citations from The Computer Database)

Jun. 1997; In English; Page count unavailable. Supersedes PB96-864145

Report No.(s): PB97-860910; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

The bibliography contains citations concerning video display terminal ergonomics with the emphasis on operator health and productivity. Health effects include posture and vision, radiation, and general occupational stress. Productivity improvement resulting from terminal, keyboard, and workplace design is also examined. Some citations pertain to the emotional stress and psychological effects related to office automation. Proposed laws pertaining to video display terminals and operator health are referenced.

NTIS

Stress (Psychology); Psychological Effects; Office Automation; Human Factors Engineering; Emotional Factors; Display Devices

19980000569 Research Inst. of National Defence, Avdelningen foer Humanvetenskap, Stockholm, Sweden

Air Monitoring Onboard the Gotland Submarine ***Luftprover Ombord Ubaeten Gotland***

Loncar, M., Research Inst. of National Defence, Sweden; Jan. 1997; 108p; In Swedish

Report No.(s): PB97-173710; FOA-R-97-00403-720-SE; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche

At the request of PTK Gtd, air monitoring tests have been performed with a monitor developed at FOA Naval Medicine Division. Retrospective air analysis has also been performed on air samples adsorbed on adsorption tubes. High concentrations of carbon dioxide were indicated during the first trials. No high concentrations of other pollutants have been indicated. The concentrations are below the maximum permissible concentrations for industrial work. Routines for calibration of the internal

gas monitoring system should be introduced. An instrument for measuring carbon monoxide is recommended for the internal gas monitoring system.
NTIS
Environmental Monitoring; Gas Analysis; Air Sampling; Air Quality

19980000572 NERAC, Inc., Tolland, CT USA
Helmets Used for Sports Protection. (Latest citations from the U.S. Patent Bibliographic File with Exemplary Claims)
Jun. 1997; In English; Page count unavailable. Supersedes PB96-864285
Report No.(s): PB97-860936; No Copyright; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche
The bibliography contains citations of selected patents issued for helmets worn while participating in sports, or while motorcycling or driving. Citations cover the design and manufacture of helmets, goggles, and facemasks. Radios, radar detectors, and lighting devices built into helmets are also discussed. Occupational headgear is discussed in a separate bibliography.
NTIS
Radio Equipment; Protective Clothing; Helmets; Goggles

19980000618 Fakespace, Inc., Mountain View, CA USA
A Hybrid Immersive/Non-Immersive Virtual Environment Workstation
1997; 8p; In English
Contract(s)/Grant(s): N96-057
Report No.(s): AD-A329301; Rept-97253; No Copyright; Avail: CASI; A02, Hardcopy; A01, Microfiche
The accurate representation of maps and other symbology by the virtual environment is required so that decisions based on insights gained from using the system can be made with confidence. The presentation of virtual environments with immersive display technologies such as head mounted displays have been studied in some detail as evidenced by the research done by NASA, UNC, MIT and other institutions. The evaluation of Non-Immersive stereoscopic interfaces is less well developed as the technology is relatively new.
DTIC
Workstations; Display Devices

19980001107 NERAC, Inc., Tolland, CT USA
Protective Clothing, Survival, Aircraft, and Combat Environments: Latest Citations from the NTIS Bibliographic Database
Jan. 1997; In English
Report No.(s): PB97-854418; Copyright Waived; Avail: Issuing Activity (Natl Technical Information Service (NTIS)), Microfiche
The bibliography contains citations concerning design, testing, and evaluation of protective apparel for use by military personnel in combat, and by others exposed to hazardous conditions and environments. Protection from chemicals, fire, heat, cold, explosion, and laser radiation is discussed.(Contains 50-250 citations and includes a subject term index and title list.)
NTIS
Bibliographies; Protective Clothing

Subject Term Index

Personal Author Index

T

V

W

Y

Z

Report Documentation Page

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