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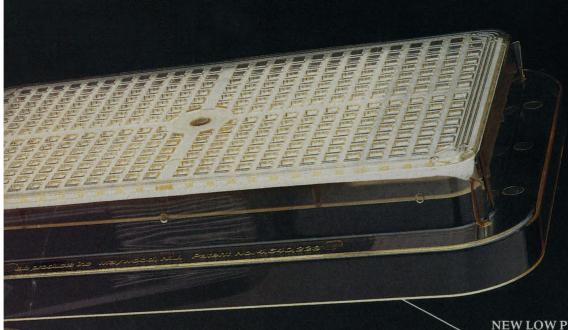
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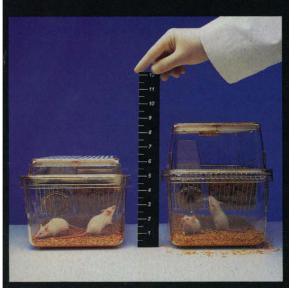


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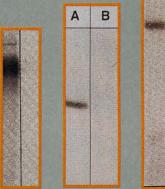
TGFa in Giant Nevus



c-jun in colon adenocarcinoma

p21 K-ras Asp-12 K-ras Val-12

Differentiation of ras Asp-12 using Mutation -Specific Antibody



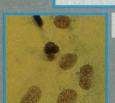
LDL - R

All shown with trp E negative control

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Cellular

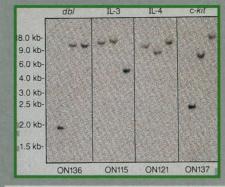


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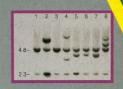


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Natural quartz grains compressed as single crystals in a diamond-anvil cell and then decompressed to ambient conditions (large grain, ~120 micrometers long). The formation of amorphous phases (pink) at high pressure within the crystalline phase (blue and orange) indicates pressure-induced shear instability. Similar

amorphous phases can be observed in silicates subjected to high-stress conditions in a wide range of geologic environments and may have a common, solid-state origin. See page 666; also see page 663. [Photomicrograph: Kathleen J. Kingma, with cross-polarized light]



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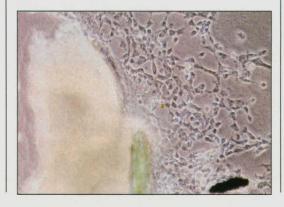
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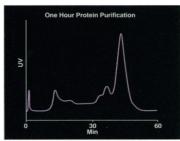
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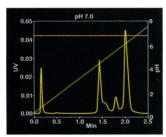
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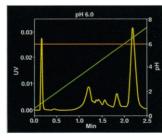


Anion exchange separation of recombinant protein with conventional LC column and instrumentation.

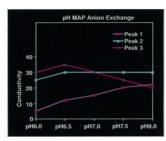
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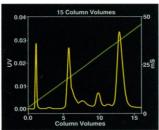
We began by running the separation at several pHs.



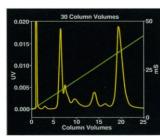
Confirmed the optimum pH at 6.0.



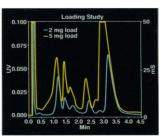
Plotted results from built-in spreadsheet.



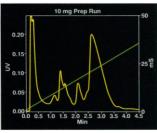
Tested gradient slopes for improved resolution.



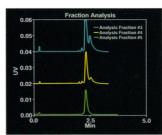
Selected 30 column volume gradient as optimum.



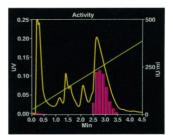
Studied the effect of loading at 2 mg and 5 mg.



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THIS WEEK IN SCIENCE

edited by PHIL SZUROMI

Hormones and cancer

Hormone-related cancers account for more than 40 percent of newly diagnosed female cancers in the United States. Epidemiological studies indicate that the use of exogenous hormones, such as oral contraceptives and hormone replacement therapy, affects the incidence rates of ovarian, endometrial, and breast cancers. Henderson et al. (p. 633) suggest that it may be possible to formulate an oral contraceptive that can decrease the incidence of all three cancers.

Buckyball isotope shift

Fullerenes become superconducting when doped with alkali metals, but the physical mechanism is as yet unknown. Chen and Lieber (p. 655) use one standard method for studying the mechanism, changing the mass of the lattice ions by replacing some of the chemical constituents with different isotopes. If electron-phonon coupling is strong, the superconducting transition temperature will shift. The authors synthesized a series of isotopically substituted rubidium-doped fullerenes and report the resulting transitiontemperature shifts. The shifts indicate that present theories, based on either electronic or phonon pairing mechanisms, are not complete descriptions of superconducting fullerenes.

X-ray magnetic microscopy

Polarized light can be used to study the properties of magnetic materials. Stöhr *et al.* (p. 658), working at x-ray wavelengths, performed microscopic imaging of subsurface magnetic layers. Circularly polarized x-rays from

Inner heat in early asteroids

Evidence from meteorites shows that asteroids that formed close to the sun during the early formation of the solar system reached high temperatures, whereas those farther away remained cool. One suggested mechanism has been electrical induction associated with the early sun. Grimm and McSween (p. 653) instead present an analysis showing that the heating can be explained by high concentrations of short-lived radioisotopes, specifically aluminum-26, in the inner asteroids. The decrease in concentration with distance from the sun can be explained by the expected longer time for outer planetesimals to accrete; the estimated time approaches several half-lives of aluminum-26.

a synchrotron cause the emission of photoelectrons, which are then energy-analyzed as the x-ray beam is scanned over the surface. The technique produces images of high contrast and can detect specific chemical elements. The authors were able to create images of the stored data on the magnetic platter of a computer disk drive, even when the surface was covered with an organic fluorocarbon lubricant.

Activating CO

One goal of inorganic chemists is to find synthetic routes that incorporate small carbon-containing molecules, such as carbon monoxide (CO), into larger organic molecules through carbon-carbon bond formation. Proulx and Bergman (p. 661) report the results of the reaction of a tantalum complex that contains a reactive methylene group (CH₂) with the metal carbonyl complexes Co₂(CO)₈, $Fe_2(CO)_9$, and $Re_2(CO)_{10}$. Reaction with the cobalt and iron complexes produces a compound that bridges the metal centers with a three-carbonatom ligand, $C_3H_2O_2$. Reaction with the rhenium complex leads to extensive rearrangements to produce a CH₃-CC ligand. Such reactions may prove useful in understanding the mechanisms underlying the Fischer-Tropsch process, in which CO and hydrogen are converted to higher hydrocarbons.

Regulatory proteinkinase complex

In bacteria, the phosphotransferase system (PTS) regulates the transport of sugars that it uses as substrates and interferes with the uptake of other energy sources. The protein IIIGlc facilitates glucose transport and, in its unphosphorylated form, binds to enzymes that take up and metabolize non-PTS carbon sources. Hurley et al. (p. 673) present the x-ray crystal structure of the complex formed by unphosphorylated IIIGle, glycerol kinase, glycerol, and adenosine phosphate. The results suggest how phosphorylation of IIIGle would prevent protein binding.

Pinning down Ras

Ras proteins in yeast control the activity of adenylyl cyclase. Posttranslational modifications of Ras are required to localize Ras to the cell membrane. Kuroda *et al.* (p. 683) report that farnesylation of the yeast Ras2 protein (addition of a long hydrocarbon tail) greatly in-

creased its affinity for its effector, adenylyl cyclase. Subsequent palmitoylation of Ras2 enhanced its binding to membranes. These results indicate that posttranslational modifications influence both localization of Ras2 and its interaction with other proteins.

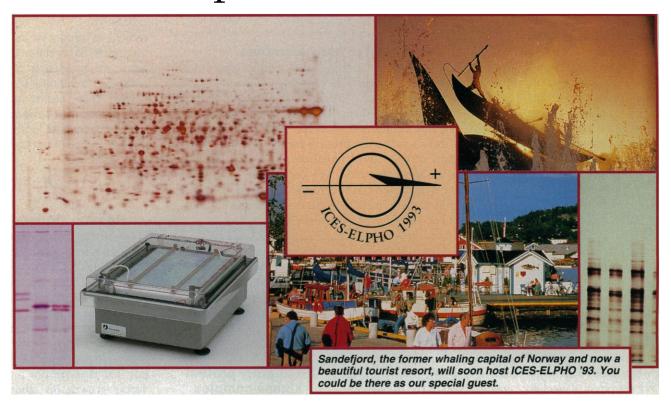
Hosting virulence

Most genes from bacterial pathogens that enable the microbes to successfully infect their mammalian hosts are not vet identified. Working with Salmonella typhimurium, Mahan et al. (p. 686) devised a system that pinpoints and isolates those genes that are turned on in the host but that are not induced during growth on laboratory media. Artificially reducing the expression of the identified genes reduced the bacteria's virulence. The unmasking of virulence genes may provide additional antigens for vaccines and targets for antimicrobial drugs (see news story by Barinaga, p. 595).

Survival factor

Oligodendrocytes, a type of glial cell in the central nervous system, form myelin, the insulation that surrounds the axons of neurons. These cells and the myelin sheaths are damaged in neurodegenerative disorders such as multiple sclerosis. Louis et al. (p. 689) demonstrate that ciliary neurotrophic factor (CNTF), a trophic factor that acts on neurons, promotes survival of oligodendrocytes in vitro. In addition, CNTF protects oligodendrocytes against the cytotoxic effect of tumor necrosis factors that are believed to contribute to the pathology of multiple sclerosis.

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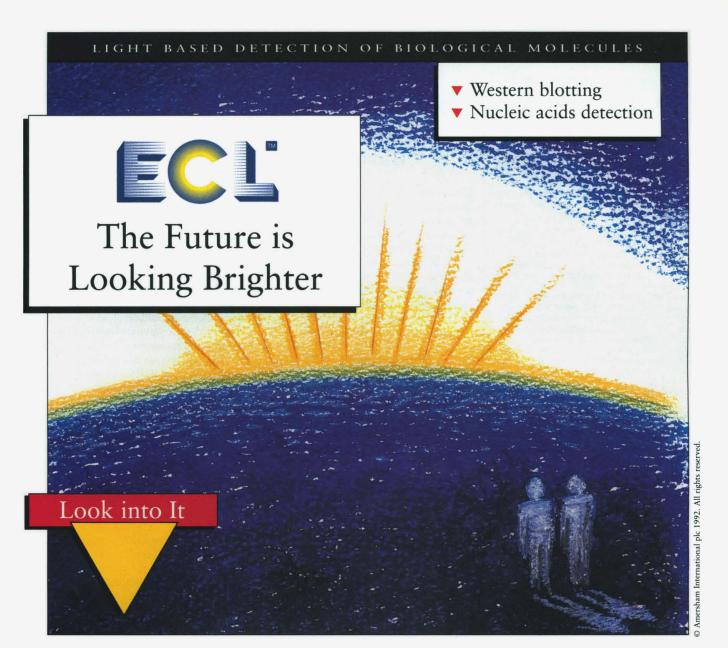
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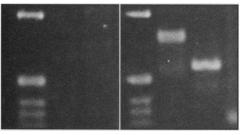
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Hynes Convention Center, Boston 11–16 February 1993

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On-site registration begins 2pm, 11 Feb., at the Hynes Convention Center, 900 Boylston St., Boston.

	AAAS member	Non- member
Regular	\$175	\$225
Student*	\$ 35	\$ 55
Postdoc*	\$ 70	\$ 95
K-12 Teacher*	\$ 70	\$ 95

*To qualify for special rates, Students must show a valid student ID card; Postdocs and K-12 teachers must provide name and phone number of chair-person/principal.

Hotel Reservations

Two hotels, connected to the Hynes by an enclosed walkway, are holding a block of rooms for AAAS☆93. For hotel reservations, contact the hotel directly:

Boston Marriott Copley Place 617-236-5800. Rates: \$99-\$119.

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Program Tracks

Seminars

- ◆ Protein Kinases and Phosphatases
- Human Obesity
- ◆ Mapping the Human Brain
- Teaching Ethics in Science and Engineering

Symposia Tracks

- ◆ Perspectives on Human Genetics
- ♦ Confronting AIDS
- ♦ Biology: Cells and Bugs
- ♦ Medical Research and Society
- ◆ Social Psychology and Neuroscience
- ◆ Future Chemistry: From Carbon to Silicon
- ♦ Measuring the Matter & Energy of the Universe
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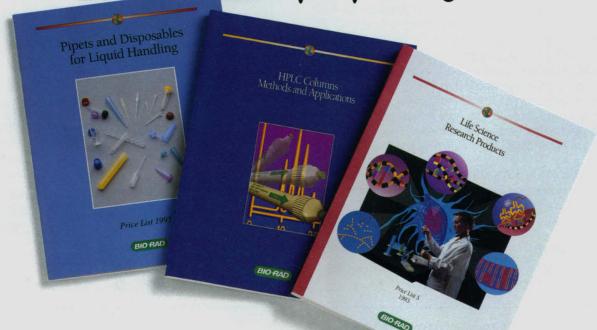
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- ◆ Super-Optimizing Analysis in All Fields of Science
- ♦ Science Education Reform in America

Additional Meeting Information

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Abstract Presentations:

Researchers are encouraged to submit poster abstracts. Deadline for submission of abstracts is March 1, 1993.

Special Events:

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Anthony J. Sinskey MIT

Robert B. Weiss University of Utah

Annemarie Poustka *German Cancer Res. Ctr.*

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Baylor College of Medicine

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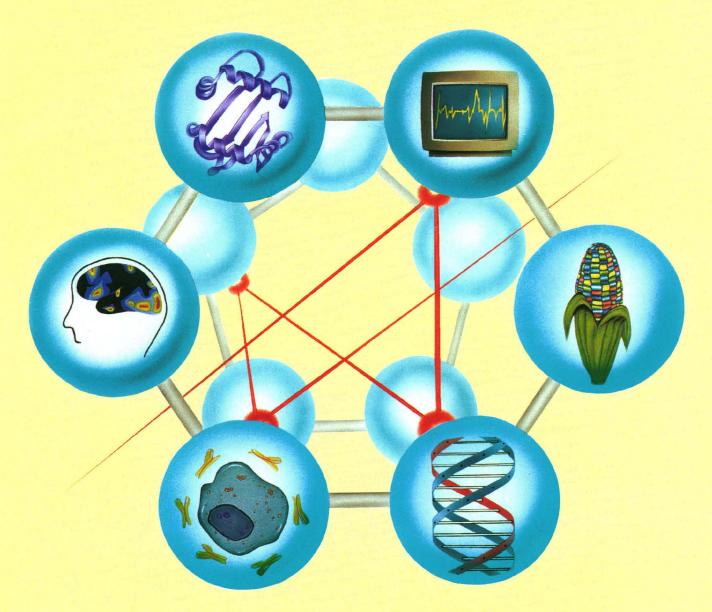
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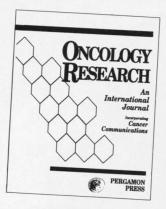
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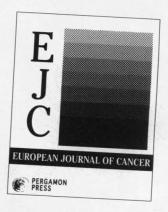
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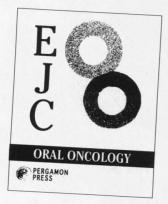
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April 13-26
Hadi Abderrahim, Cell Genesys, Inc.
Bruce Birren, California Institute of Technology
Sue Klapholz, Cell Genesys, Inc. Douglas Voltrath, Whitehead Institute

Protein Purification & Characterization

April 13-26 William Brennan, Jr., Pennsylvania State University Richard Burgess, University of Wisconsin, Madison James Kadonaga, University of California, San Diego Daniel R. Marshak, Cold Spring Harbor Laboratory

Early Development of Xenopus Laevis

April 14-22

Richard Harland, *University of California, Berkeley* Hazel Sive, *Whitehead Institute*

Construction & Analysis of Two-Dimensional Gel Protein Databases April 13-20

April 13-20

B. Robert Franza, Jr., Cold Spring Harbor Laboratory
James Garrels, Cold Spring Harbor Laboratory
Gerald Latter, Cold Spring Harbor Laboratory
Scott Patterson, Cold Spring Harbor Laboratory

FIRST SESSION SUMMER COURSES

Advanced Bacterial Genetics

June 11-July 1

Stanley Maloy, University of Illinois, Urbana Valley Stewart, Cornell University Ronald Taylor, University of Tennessee

Molecular Approaches to Ion Channel Expression & Function

June 11-July 1 Jack J. Enyeart, Ohio State University Alan L. Goldin, University of California, Irvine
Diane M. Papazian, University of California, Los Angeles
Peter C. Ruben, University of Hawaii

Molecular Embryology of the Mouse

June 11-July 1

Jeff Mann, Beckman Research Institute
Philippe Soriano, Fred Hutchinson Cancer Research Center

Human Functional Neuroimaging

June 11-17

Francis Miezin, Washington University School of Medicine Steven Petersen, Washington University School of Medicine Marcus Raichle, Washington University School of Medicine

Structure, Function & Development of the Visual System

June 20-July 3

Tobias Bonhoeffer, Max Planck Institut, Frankfurt
David Fitzpatrick, Duke University

SECOND SESSION SUMMER COURSES

Molecular Cloning of Neural Genes

July 5-25

James Boulter, The Salk Institute
Moses Chao, Cornell University Medical College
Jim Eberwine, University of Pennsylvania Medical School

Arabidopsis Molecular Genetics

July 5-25 Joanne Chory, The Salk Insitute Joseph Ecker, *University of Pennsylvania* Athanasios Theologis, *University of California, Berkeley*

Neurobiology of Drosophila

Alan Bieber, Purdue University

Roger Hardie, University of Cambridge, United Kingdom Paul Taghert, Washington University

The Biology of Memory: From Molecules to Behavior

July 9-22

John Byrne, *University of Texas Medical School* Eric Kandel, *Columbia University College of P & S* Keir Pearson, University of Alberta Larry Squire, University of California, San Diego

Developmental Neurobiology

July 24-August 6

Greg Lemke, The Salk Institute Dennis O'Leary, The Salk Institute

THIRD SESSION SUMMER COURSES

Advanced Molecular Cloning & Expression of Eukaryotic Genes

July 27-August 16

Len Freedman, Sloan Kettering Institute Marc Learned, University of California, Davis Alan Robbins, Tularik, Inc.

Imaging Structure & Function in the Nervous System

July 27-August 16

George Augustine. Duke University Medical School Jeff Lichtman, Washington University

Yeast Genetics

July 27-August 16

Chris Kaiser, MIT Center for Cancer Research Susan Michaelis, Johns Hopkins School of Medicine Aaron Mitchell, Columbia University

Neurobiology of Human Neurological Disease

Dennis Choi, Washington University School of Medicine William Mobley, University of California, San Francisco

FALL COURSES

Macromolecular Crystallography

October 13-26

William Furey, V.A. Medical Center, Pittsburgh Gary Gilliland. Center for Advanced Research in Biotechnology Alexander McPherson, University of California, Riverside Jim Pflugrath, Cold Spring Harbor Laboratory

Advanced In Situ Hybridization & Immunocytochemistry

October 13-26

Paul Hough, Brookhaven National Laboratory Ken Jacobson, University of North Carolina, Chapel Hill David Spector, Cold Spring Harbor Laboratory Barbara Trask, University of Washington, Seattle

Analysis & Genetic Manipulation of YACs

October 14-27

Eric Green, Washington University School of Medicine Claire Huxley, St. Mary's Hospital Medical School, United Kingdom Rodney Rothstein, Columbia University College of P & S

Essential Computational Genomics for Biologists

Fibert Branscomb, Lawrence Livermore National Laboratory Nat Goodman, Whitehead Institute & Massachusetts Institute of Technology Eric Lander, Whitehead Institute & Massachusetts Institute of Technology Tom Marr, Cold Spring Harbor Laboratory Gene Myers, University of Arizona

Molecular Genetics, Cell Biology & Cell Cycle of Fission Yeast

November 2-15

Tom Chappell, Duke University Peter Fantes, University of Edinburgh Maureen McLeod, SUNY at Brooklyn

Molecular Markers for Plant Breeding

November 2-15

Ben Burr, Brookhaven National Laboratory Tım Helentjaris, University of Arizona Scott Tingey, DuPont Experimental Station

Monoclonal Antibodies from Combinatorial Libraries

November 2-15

Carlos Barbas, Scripps Research Institute Dennis Burton, Scripps Research Institute



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"Experimental and Clinical Precancerous Lesions: Approaches to Cancer Prevention and Early Diagnosis"

P. Marks (USA) and R. Weil (CH) Montreux (CH), March 29-31

"Molecular Diagnosis and Monitoring of Leukaemia and Lymphoma"
F. Grignani (I)

Perugia (I), April 15-17

"Molecular Basis of Inflammation" J. Navarro (USA)

Heidelberg (D), April 21-23

"Metabolism in the Female Life Cycle" M.P. Diamond and F. Nafrolin (USA) **Taormina (I), May 17-18**

"Recent Advances on Monoclonal Gammapathies and Related Malignancies"

B. Barlogie (USA) and F. Dammacco (I) Evian (F), June 3-5

"Inhibin and Inhibin-Related Proteins" H.G. Burger (AUS)

Siena (I), June 17-18

"Cell and Molecular Biology of the Testis"

M.L. Dufau (USA) and A. Isidori (I) Majorca (E), September 13-14

"GTPase-Controlled Molecular Machines"

D. Corda, S. Garattini and A. Luini (I) S. Maria Imbaro (I), Sept. 22-25

"Developmental Endocrinology"
M.L. Aubert and P.C. Sizonenko (CH)
Geneva (CH), Sept. 30 - Oct. 2

"The Challenge of Biotechnology: from Laboratory Diagnosis to Clinical Therapy"

S.A. Aaronson (USA) and R. Verna (I) Rome (I), October 11-12

"Molecular Basis of Endocrine Diseases"

C. Pavía (E)

Barcelona (E), November 18-19

ordon Research Conferences

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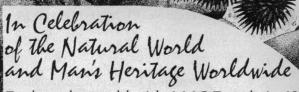
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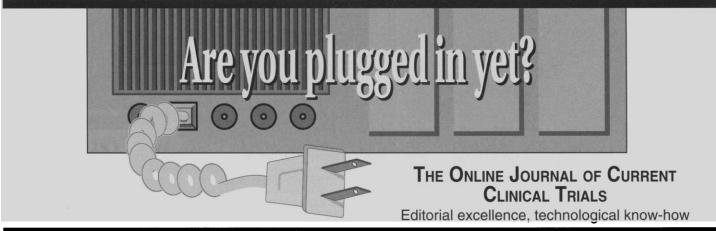
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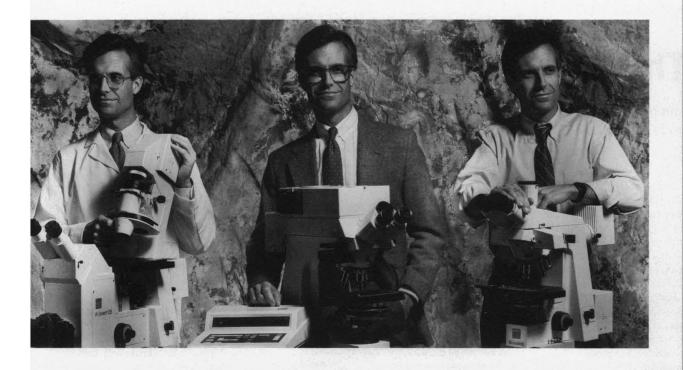
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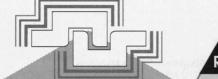
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PHYSICAL ENVIRONMENT
Prof. L. DUCKSTEIN, UNIV. OF ARIZONA, SYSTEMS & IND.

ENGR. DEPT, TUCSON, AZ 85721, USA 23 May-5 June 1993 : DEAUVILLE, FRANCE 920840 NANOPHASE MATERIALS: SYNTHESIS - PROPERTIES -

APPLICATIONS Prof. G.C. HADJIPANAYIS, UNIV. OF DELAWARE, DEPT. OF PHYSICS AND ASTRONOMY, NEWARK, DE 19716, USA 20 June-2 July 1993: CORFU, GREECE 9208: 920873

COOLING OF ELECTRONIC SYSTEMS

Prof. S. KAKAC, UNIV. OF MIAMI, DEPT. OF MECHANICAL ENG., PO BOX 248294, CORAL GABLES, FL 33124, USA 21 June-2 July 1993: CESME-IZMIR, TURKEY 9204 920484

COMPUTER AIDED ANALYSIS OF RIGID AND FLEXIBLE MECHANICAL SYSTEMS

Prof. M. SEABRA PEREIRA, CEMUL, INST. SUPERIOR TECNICO, AV ROVISCO PAIS, 1096 LISBOA CODEX, PORTUGAL 27 June-9 July 1993: TROIA, PORTUGAL 920842

Advanced Study Institutes (continued)

COMPUTATIONAL FLUID DYNAMICS

Prof. M. LESIEUR, NATIONAL POLYTECHNIC INSTITUTE INST. DE MECANIQUE, BP 53 X, 38041 GRENOBLE CEDEX,

28 June-1 Aug. 1993: LES HOUCHES, FRANCE 920407

COMPUTER MODELING OF FREE-SURFACE AND PRESSURIZED FLOWS

Prof. M.H. CHAUDHRY, WASHINGTON STATE UNIV. COLLEGE OF ENGINEERING AND ARCHITECTURE, PULLMAN. WA 99164-2910, USA

28 June-9 July 1993: PULLMAN, WA, USA

PEOPLE AND COMPUTERS:AN ANTHROPOCENTRIC APPROACH TO INTEGRATED PRODUCTION SYSTEMS AND ORGANISATIONS Dr. F. SCHMID, BRUNEL UNIV., DEPT OF MANUFACTURING & ENG. SYSTEMS, UXBRIDGE, MIDDLESEX UB8 3PH, UK 910722

5-16 July 1993: LOUGHBOROUGH, UK

WIND CLIMATE IN CITIES Prof. E.J. PLATE, UNIV. KARLSRUHE, INST. F. HYDROLOGIE & WASSERWIRTSCHAFT, KAISERSTR. 12, 7500 KARLSRUHE,

GERMANY

5-16 July 1993: WALDBRONN, GERMANY

NONLINEAR OPTICAL MATERIALS AND DEVICES FOR APPLICATIONS IN INFORMATION TECHNOLOGY
Prof. A. MILLER, UNIV. OF CENTRAL FLORIDA,

CTR FOR RES. IN ELECTRO-OPTICS & LASERS, 12424 RESEARCH PKWY, SUITE 400, ORLANDO, FL 32826, USA 13-26 July 1993 : ERICE, ITALY 920896

COMPOSITION, GEOCHEMISTRY AND CONVERSION OF OIL SHALES DR. C.E. SNAPE, STRATHCLYDE UNIV., DEPT OF PURE & APPLIED CHEM., THOMAS GRAHAM BLDG., 295 CATHEDRAL STREET GLASGOW G1 1XL LIK

18-31 July 1993 : MARMARIS, TURKEY

SUPERCRITICAL FLUIDS - FUNDAMENTALS FOR APPLICATION Prof. E. KIRAN, UNIV. OF MAINE, DEPT. OF CHEMICAL ENGINEERING, ORONO, ME 04469, USA 18-30 July 1993 : ANTALYA, TURKEY

920893

UNSTEADY COMBUSTION

Prof. M. V. HEITOR INSTITUTO SUPERIOR TECNICO, DEPT OF MECHANICAL ENGINEERING, 1096 LISBOA CODEX, PORTUGAL 6-17 September 1993: PRAIA DA GRANJA, PORTUGAL 920803

EXCIMER LASERS: THE TOOLS, FUNDAMENTAL PROCESSES AND APPLICATIONS

Prof. L.D. LAUDE, UNIV. OF MONS-HAINAUT, DEPT OF MATERIALS & PROCESSES, AVE MAISTRIAU 23, B-7000 MONS. BELGIUM

6-18 September 1993: ELOUNDA, CRETE, GREECE 920414

EARTH SCIENCES

OCEAN PROCESSES IN CLIMATE DYNAMICS: GLOBAL AND

MEDITERRANEAN EXAMPLES
Prof. P. MALANOTTE-RIZZOLI, MIT, DEPT. OF EARTH ATMOSPHERIC AND PLANETARY SCIENCES, ROOM 54-1416, CAMBRIDGE, MA 02139, USA

20 Jan-2 Feb. 1993 : ERICE, ITALY 920346 FELDSPARS AND THEIR REACTIONS

Prof. I. PARSONS, UNIV. OF EDINBURGH, DEPT OF GEOLOGY & GEOPHYSICS, WEST MAINS RD., EDINBURGH, EH9 3JW, UK 920398 29 June-10 July 1993 : EDINBURGH, UK

LOW TEMPERATURE CHEMISTRY OF THE ATMOSPHERE Dr. G.K. MOORTGAT, MPI F. CHEMIE, AIR CHEMISTRY DIVISION, SAARSTR. 23, POSTFACH 3060, 6500 MAINZ, GERMANY 29 Aug.-11 Sept. 1993: MARATEA, ITALY (SGEC) 920825

SOCIAL AND BEHAVIOURAL SCIENCES

AUTOMATING INTRUCTIONAL DESIGN: COMPUTER-BASED DEVELOPMENT AND DELIVERY TOOLS

Prof. R.D. TENNYSON, UNIV. OF MINNESOTA, EDUCATIONAL PSYCHOLOGY DEPT, 178 PILLSBURY DR. S.E., MINNEAPOLIS, MINNESOTA 55455, USA

12-23 July 1993: PADERBORN, GERMANY 921087

MEASURES OF FACIAL EXPRESSION

Prof. H. ELLGRING, UNIV. WURZBURG, INSTITUT F.
PSYCHOLOGIE, DOMERSCHULSTR. 13, 8700 WURZBURG,

1-14 August 1993 : BAD WINDSHEIM. GERMANY

BASICS OF MAN-MACHINE COMMUNICATION FOR THE DESIGN OF EDUCATIONAL SYSTEMS
Dr. M.D. BROUWER-JANSE, INSTITUTE FOR PERCEPTION

RESEARCH, PO BOX 513, 5600 MB EINDHOVEN, THE NETHERLANDS.

16-26 August 1993 : EINDHOVEN, NETHERLANDS (AET) 920459

Advanced Research Workshops

LIFE SCIENCES

THE CELLULAR MECHANISMS OF SENSORY PROCESSING

(THE SOMATOSENSORY SYSTEM)
Dr. L. URBAN, SANDOZ INST. FOR MEDICAL RESEARCH, 5 GOWER PLACE, LONDON WC1E 6BN, UK

1-3 April 1993 : WYE, KENT, UK 920400

FUNDAMENTAL AND CLINICAL ASPECTS OF AUTOIMMUNITY Dr. M. ZOUALI, INSTITUT PASTEUR, IMMUNOGENETIQUE CELLULAIRE, 28 RUE DU DR. ROUX, 75015 PARIS, FRANCE 9-13 May 1993 : MARATEA, ITALY

USES OF IMMOBILIZED BIOLOGICAL COMPOUNDS FOR DETECTION, MEDICAL, FOOD AND ENVIRONMENT ANALYSIS Prof. G.G. GUILBAULT, UNIV. OF NEW ORLEANS, CHEMISTRY DEPARTMENT, NEW ORLEANS, LA 70148, USA 9-13 May 1993 : BRIXEN, ITALY 920870

ASCOMYCETE SYSTEMATICS - LICHENIZED AND NON LICHENIZED ASCOMYCETES: PROGRESS AND PERSPECTIVES IN SYSTEMATICS

Prof. D.L. HAWKSWORTH, INTERNATIONAL MYCOLOGICAL INSTITUTE, BAKEHAM LANE, EGHAM, SURREY TW20 9TY, UK 11-14 May 1993 : PARIS, FRANCE

LYME BORRELIOSIS

Dr. J.S. AXFORD, ST. GEORGE'S HOSPITAL MED. SCHL., RHEUMATOLOGY & IMMUNOLOGY DEPT.. CRANMER TERRACE, LONDON SW17 ORE, UK 19-20 May 1993 : LONDON, UK 921112

NEUROSPECIFICITY MAPS AND MOLECULES

DR. F. BONHOEFFER, MPI F. ENTWICKLUNGSBIOLOGIE, ABTEILUNG PHYSIKALISCHE BIOLOGIE, TUBINGEN, GERMANY 23-29 May 1993 : CARGESE, CORSICA, FRANCE

STATISTICAL MECHANICS, PROTEIN STRUCTURE, AND PROTEIN SUBSTRATE INTERACTIONS
Prof. S. DONIACH, STANFORD UNIV., DEPT OF APPLIED

PHYSICS, STANFORD, CA 94305, USA 1-5 June 1993: CARGESE, CORSICA, FRANCE 921104

OBESITY TREATMENT: ESTABLISHING GOALS, IMPROVING OUTCOMES AND REVIEWING THE RESEARCH AGENDA Dr. F.X. PI-SUNYER, ST LUKE'S/ROOSEVELT HOSPITAL CTR, OBESITY RESEARCH CTR, AMSTERDAM AVE. AT 114th ST... NEW YORK, NY 10025, USA

2-5 June 1993 : NEW YORK, USA THE AGING CLOCK: THE PINEAL GLAND AND OTHER PACE

MAKERS IN THE PROGRESSION OF AGING AND CARCINGGENESIS
DR. W. PIERPAOLI, INST. FOR BIOMEDICAL RESEARCH, VIA
LUSERTE 2, 6572 QUARTINO-MAGADINO, SWITZERLAND
2,0 Luca 1982 - STEDMENL TALV 3-9 June 1993 : STROMBOLI, ITALY

BIOCHEMICAL AND CELLULAR MECHANISMS OF STRESS TOLERANCE IN PLANTS

Prof. J.H. CHERRY, AUBURN UNIV., DEPT. OF BOTANY & MICROBIOLOGY,129 FUNCHESS HALL, AUBURN, AL 36849, USA 20-24 June 1993 : MARATEA, ITALY 920901

MOLECULAR AND CELLULAR MECHANISMS OF H+ TRANSPORT Dr. B.H. HIRST, UNIV. OF NEWCASTLE UPON TYNE, DEPT. OF PHYSIOLOGICAL SC., MED. SCHOOL, NEWCASTLE UPON TYNE

27 July-1 August 1993 : YORK, UK

ESTERASES, LIPASES AND PHOSPHOLIPASES: FROM STRUCTURE TO CLINICAL SIGNIFICANCE
Prof. M. CLERC, UNIV. DE BORDEAUX II, LAB DE BIOCHIMIE

MEDICALE A, 146 RUE LEO-SAIGNAT, 33076 BORDEAUX,

22-24 September 1993 : BORDEAUX, FRANCE

PHYSICS AND CHEMISTRY

SILAP (SUPER-INTENSE LASER ATOM PHYSICS)

Dr. B. PIRAUX, UCL, DEPT DE PHYSIQUE (UNITÉ FYAM), CHEMIN DU CYCLOTRON 2,1348 LOUVAIN LA NEUVE, BELGIUM 8-14 January 1993: HAN-SUR-LESSE, BELGIUM 920638

SOFT ORDER IN PHYSICAL SYSTEMS

Prof P.G. DEGENNES, ECOLE DE PHYSIQUE ET CHIMIE RUE VAUQUELIN, 75231 PARIS CEDEX 05, FRANCE (COP) 921059 16-25 Feb. 1993: LES HOUCHES, FRANCE

OPTICAL PROPERTIES OF LOW DIMENSIONAL SILICON STRUCTURES

Dr. D. BENSAHEL, FRANCE TELECOM, CNET-CNS, BP 98, 38243 MEYLAN CEDEX, FRANCE 1-3 March 1993 : MEYLAN, FRANCE

(NANO) 920766

SPATIO-TEMPORAL PROPERTIES OF CENTRIFUGAL **INSTABILITIES**

Dr. P. LAURE, UNIV. DE NICE/UMR CNRS 129, INSTITUT NONLINEAIRE, NICE 06108, FRANCE 29-31 March 1993 :NICE, FRANCE (COP) 920911

SPATIO-TEMPORAL PATTERSN IN NONEQUILIBRIUM **COMPLEX SYSTEMS**

Dr. P.E. CLADIS, AT&T BELL LABORATORIES 600 MOUNTAIN AVENUE MH1E441, MURRAY HILL,

13-17 April 1993 :SANTA FE, NM, USA (COP) 920888

NEW DEVELOPMENTS IN STRING THEORY, CONFORMAL MODELS AND TOPOLOGICAL FIELD THEORY
Dr. L. BAULIEU, UNIVERSITE P & M CURIE, LPTHE.

TOUR 16 (1ER ETAGE), 4 PLACE JUSSIEU, 75252 PARIS CEDEX 05, FRANCE

11-17 May 1993 : CARGESE, CORSICA, FRANCE

RADIOFREQUENCY STANDARDS: BIOLOGICAL EFFECTS OF ELECTROMAGNETIC FIELDS

Prof. M. GRANDOLFO, NATIONAL INSTITUTE OF HEALTH, PHYSICS LABORATORY, VIALE REGINA ELENA, 299, 00161 ROMA, ITALY

17-21 May 1993 : ROME, ITALY

CHAOTIC ADVECTION, TRACER DYNAMICS AND TURBULENT DISPERSION

Dr. A. PROVENZALE, IST. DI COSMOGEOFISICA DEL CNR, CORSO FIUME 4, 10133 TORINO, ITALY 24-28 May 1993 : ALESSANDRIA, ITALY (COP) 921050

NONLINEAR COHERENT STRUCTURES IN PHYSICS AND BIOLOGY

Prof. K.H. SPATSCHEK, HEINRICH HEINE UNIVERSITEIT, INST F. THEORETISCHE PHYSIK I, 4000 DUSSELDORF,

1-4 June 1993 : BAYREUTH, GERMANY (COP) 921060 PHYSICS AND CHEMISTRY OF THE FULLERENES

Dr. K. PRASSIDES, UNIV. OF SUSSEX, SCHOOL OF CHEMISTRY AND MOLEC. SCIENCES, FALMER, BRIGHTON, BN1 9QJ, UK 920359 7-13 June 1993 : CRETE, GREECE

PATTERN FORMATION AND LATTICE GAS AUTOMATA

Prof. R.E. KAPRAL, UNIV. OF TORONTO, CHEMICAL PHYSICS THEORY GROUP, DEPT. OF CHEMISTRY, TORONTO. ONTARIO M5S 1A1, CANADA

8-12 June 1993: WATERLOO, ONT., CANADA 920869

MICRO, MESO AND MACROSCOPIC APPROACHES IN

Prof. A. VERBEURE, UNIV. LEUVEN, INSTITUT THEORETISCHE FYSICA, CELESTIJNENLAAN 200 D, B-3001 LEUVEN, BELGIUM

19-24 July 1993 : LEUVEN, BELGIUM COHERENT OPTICAL INTERACTIONS IN SEMICONDUCTORS

Dr. R. PHILLIPS, UNIV. OF CAMBRIDGE, CAVENDISH LABORATORY, MADINGLEY RD., CAMBRIDGE CB3 OHE, UK 11-14 August 1993 : CAMBRIDGE, UK 920844

HYDROGEN-BOND NETWORKS

DR. M.C. BELLISSENT-FUNEL, CEN-SACLAY, LAB. LEON BRILLOUIN, F-91191 GIF SUR YVETTE CEDEX, FRANCE 16-22 August 1993: CARGESE, CORSICA, FRANCE 920899

INDUCED SPECTROSCOPY: ADVANCES AND APPLICATIONS Prof. G.C. TABISZ, UNIV. OF MANITOBA, DEPT OF PHYSICS, WINNIPEG, MANITOBA R3T 2N2, CANADA

30 August-3 Sept. 1993 : BANFF, CANADA COMPUTATIONAL APPROACHES IN SUPRAMOLECULAR CHEMISTRY

Prof. G. WIPFF, UNIV. LOUIS PASTEUR, STRASBOURG, FAC. DE CHIMIE, 4 RUE BLAISE PASCAL, 67070 STRASBOURG CEDEX. FRANCE

2-5 Sept.1993 : STRASBOURG, FRANCE

PHOTOINDUCED ELECTRON-TRANSFER REACTIONS

Prof. L.G. ARNAUT, UNIVERSIDADE DE COIMBRA, DEPTO DE QUIMICA, 3000 COIMBRA, PORTUGAL (NANO) 920978 5-11 Sept. 1993: FALESIA, PORTUGAL

QUANTUM WELL INTERSUBBAND TRANSITION PHYSICS AND DEVICES

Dr. H.C. LIU, NRC INSTITUTE FOR MICROSTRUCTURAL SCIENCE, OTTAWA, K1A OR6, CANADA 7-10 September 1993: WHISTLER, CANADA 920868

SELF-PRODUCTION OF ORGANIZED SUPRAMOLECULAR

Prof. S. COLONNA, UNIV. OF MILAN, FACULTY OF PHARMACY, VIA C. GOLGI 19, 20133 MILANO, ITALY 15-18 September 1993: MARATEA, ITALY (CHEM) 921103

ASTRONOMY AND ASTROPHYSICS

THEORY OF ACCRETION DISKS

STRUCTURES

DR. F. MEYER, MPI F. ASTROPHYSIK, KARL-SCHWARZSCHILD-STR. 1, D-8046 GARCHING, GERMANY 22-26 March, 1993 : GARCHING, GERMANY 920381

Advanced Research Workshops (continued)

COSMICAL MAGNETISM

Prof. D. LYNDEN-BELL, UNIV. OF CAMBRIDGE, INSTITUTE OF ASTRONOMY, MADINGLEY RD., CAMBRIDGE CB3 OHA, UK 5-9 July, 1993 : CAMBRIDGE, UK

SOLAR SURFACE MAGNETISM

DR. R.J. RUTTEN, UTRECHT UNIV., STERREKUNDIG INST. POSTBUS 80000, NL-3508 TA UTRECHT, THE NETHERLANDS 19-23 July, 1993: SOESTERBERG, NETHERLANDS 920898

THE IMPACT OF LONG-TERM MONITORING ON VARIABLE STAR RESEARCH: ASTROPHYSICS, INSTRUMENTATION, DATA HANDLING, ARCHIVING

Dr. C. STERKEN, VUB, ASTRONOMY GROUP, PLEINLAAN 2, 1050 BRUSSELS, BELGIUM

15-19 NOV. 1993: GENT, BELGIUM

921008

MATHEMATICS

NONCOMPACT LIE GROUPS AND THEIR PHYSICAL APPLICATIONS

Prof. R. WILSON, UNIV. OF TEXAS, DIVISION OF MATHEMATICS, SAN ANTONIO, TX 78249, USA 4-8 January 1993 : SAN ANTONIO, TX, USA 920847

EPIDEMIC MODELS: THEIR STRUCTURE AND RELATION TO DATA Prof. D. MOLLISON, HERIOT-WATT UNIV., DEPT OF

ACTUARIAL MATHS & STATISTICS, EDINBURGH EH14 4AS, UK 4-9 January 1993 : CAMBRIDGE, UK

HAMILTONIAN MECHANICS: INTEGRABILITY AND CHAOTIC BEHAVIOUR

Prof. J. SEIMENIS, UNIV. OF THE AEGEAN, DEPT. OF MATHEMATICS, GR-83200 SAMOS, GREECE 28 June-2 July 1993: TORUN, POLAND (COP) 920494

CLASSICAL AND AXIOMATIC POTENTIAL THEORY

Prof. M. GOLDSTEIN, MCGILL UNIV., DEPT OF MATHEMATICS & STATISTICS, 805 SHERBROOKE ST.W., MONTREAL H3A 2K6, CANADA

26-30 July 1993 : LES ARCS, FRANCE 921036

NONLINEAR PHENOMENA IN EXCITABLE PHYSIOLOGICAL SYSTEMS

DR. A.V. HOLDEN, UNIV. OF LEEDS, DEPT. OF PHYSIOLOGY, LEEDS, LS2 9JT, UK

1-4 August 1993 : LEEDS, UK

(COP) 920897

COMPUTER AND SYSTEMS SCIENCES

INTEGRATION: INFORMATION AND COLLABORATION MODELS Prof. S.Y. NOF, PURDUE UNIV., SCHOOL OF INDUSTRIAL ENG., GRISSOM HALL, WEST LAFAYETTE, IN 47907, USA

6-11 June 1993 : IL CIOCCO, ITALY

APPLIED SCIENCES AND ENGINEERING

MODELS FOR INTEGRATED ELECTRICITY RESOURCE PLANNING

Prof. A.T. DE ALMEIDA, UNIV. DE COIMBRA, DEP. ENGENHARIA ELECTROTECNICA, LARGO MARQUES DE POMBAL 3000 COLMBBA PORTUGAL

17-21 May 1993: POVOA DO VARZIM, PORTUGAL 921097

RECENT RESEARCH ADVANCES IN THE FLUID MECHANICS OF TURBULENT JETS AND PLUMES

Dr. P.A. DAVIES, UNIV. OF DUNDEE, DEPT. OF CIVIL ENGINEERING, DUNDEE DD1 4HN, UK

28 June-2 July 1993: VIANA DO CASTELO, PORTUGAL 920367

METALLIC ALLOYS: EXPERIMENTAL AND THEORETICAL **PERSPECTIVES**

Prof. J.S. FAULKNER, FLORIDA ATLANTIC UNIV PHYSICS DEPARTMENT, BOCA RATON, FL 33431, USA 16-21 July 1993 : BOCA RATON, FL, USA 920804

CORROSION OF ADVANCED CERAMICS: MEASUREMENT AND MODELLING

Prof. K.G. NICKEL, UNIV. TUBINGEN, INST F. MINERALOGIE, PETR. & GEOCHEMIE, WILHELMSTR. 56, 7400 TUBINGEN, **GERMANY**

30 August-3 Sept. 1993: TUBINGEN, GERMANY 920569

ATMOSPHERIC STUDIES BY OPTICAL METHODS

Prof. K. HENRIKSEN, UNIV. OF TROMSO, THE AURORAL OBSERVATORY, N-9000 TROMSO, NORWAY

6-12 Sept 1993: MURMANSK REGION, RUSSIA 920797

MODELLING OF ENVIRONMENTAL SYSTEMS - DELINEATING THE POSSIBLE FROM THE IMPOSSIBLE

Prof. M. HAUHS, INST. FOR TERRESTRIAL ECOSYSTEM RES. (BITOEK), DR-HANS-FRISCH-STR. 1-3, 8580 BAYREUTH, GERMANY

16-20 November 1993 : BAYREUTH, GERMANY 920906

EARTH SCIENCES

ICE CORE STUDIES OF GLOBAL BIOGEOCHEMICAL CYCLES

Dr. R.J. DELMAS, LAB. DE GLACIOLOGIE & GEOPHYSIQUE DE L'ENVIRON., BP 96, 38402 ST MARTIN D'HERES CEDEX. FRANCE

25-30 March 1993 : ANNECY, FRANCE (SGEC) 920891

DATA ASSIMILATION: A NEW TOOL FOR MODELLING OF THE OCEAN IN A GLOBAL CHANGE PERSPECTIVE

Prof. J.C.J. NIHOUL, UNIV. DE LIEGE, GHER, SART TILMAN B5, 4000 LIEGE, BELGIUM

5-8 May 1993 : LIEGE, BELGIUM (SGEC) 920800

PHYSICAL SIGNATURES OF MAGNETOSPHERIC BOUNDARY LAYER PROCESSES

Prof. A. EGELAND, UNIV. OF OSLO, DEPT OF PHYSICS, P.O. BOX 1048/BLINDERN, 0316 OSLO 3, NORWAY 9-14 May 1993: LILLEHAMMER, NORWAY 920001

POLYPHASE POLYCRYSTAL PLASTICITY: MODELLING OF LARGE DEFORMATIONS

Prof. H.R. WENK, UNIV. OF CALIFORNIA, BERKELEY, DEPT OF GEOLOGY & GEOPHYSICS, BERKELEY CA 94720, USA 12-16 May 1993 : PALM DESERT, CA, USA 920505

GLOBAL ENVIRONMENTAL CHANGE AND LAND SURFACE PROCESSES IN HYDROLOGY: THE TRIALS & TRIBULATIONS OF MODELING AND MEASURING

Prof. S. SOROOSHIAN, UNIV. OF ARIZONA, DEPT OF HYDROLOGY & WATER RESOURCES, BLDG 11, TUCSON, AZ 85721, USA 17-21 May 1993 : TUCSON, AZ, USA (SGEC) 920885

STRATOSPHERIC OZONE DEPLETION/UV-B RADIATION IN THE BIOSPHERE

Dr. R.H. BIGGS, UNIV. OF FLORIDA, HORTICULTURAL SCIENCES, PO BOX 110690, GAINESVILLE, FL 32611-0690, USA 12-18 June 1993 : GAINESVILLE, FL, USA (SGEC) 921447

RECONSTRUCTION OF NORTH ATLANTIC CLIMATE CHANGE USING EXTINCT PLANT DATA

Prof. M.C. BOULTER, UNIV. OF EAST LONDON, PALYNOLOGY RESEARCH UNIT, ROMFORD RD., LONDON E15 4LZ, UK (SGEC) 921070 July 1993: LONDON, UK

CLIMATE CHANGE AND WORLD FOOD SECURITY

Prof. M.L. PARRY, UNIV. OF OXFORD, ENVIRONMENTAL UNIT/ SCHOOL OF GEOGRAPHY, OXFORD OX1 3TB, UK

(SGEC) 911084 11-15 July 1993 : OXFORD, UK

BIODIVERSITY, TEMPERATE ECOSYSTEMS, AND GLOBAL CHANGE

Dr. T.J.B. BOYLE, FORESTRY CANADA, PLACE VINCENT MASSEY, 21st FLOOR, 351 ST. JOSEPH BLVD, HULL, QUEBEC, K1A 1G5, CANADA

September 1993: MONTEBELLO, CANADA (SGEC) 921442

SOIL RESPONSES TO CLIMATE CHANGE: THE IMPLICATIONS FOR NATURAL AND MANAGED ECOSYSTEMS

Dr. P.J. LOVELAND, CRANFIELD INST. OF TECHNOLOGY, SOIL SURVEY & LAND RESEARCH CTR, SILSOE CAMPUS, SILSOE, BEDS MK45 4DT, UK

20-24 September 1993 : SILSOE, UK (SGEC) 921090

GLOBAL PRECIPITATION AND CLIMATE CHANGE

Dr. M. DESBOIS, ECOLE POLYTECHNIQUE, LAB. DE METEO-ROLOGIE DYNAMIQUE, 91128 PALAISEAU CEDEX, FRANCE, 27 Sept-1 Oct 1993 : LA LONDE, FRANCE (SGEC) 921056

EVALUATING AND MONITORING THE HEALTH OF LARGE-SCALE ECOSYSTEMS

Prof. D.J. RAPPORT, UNIV. OF OTTAWA, DEPT OF BIOLOGY, 30 MARIE CURIE, OTTAWA, ONTARIO K1N 6N5, CANADA October 1993: BANFF, CANADA (SGEC) 921440

DIACHRONIC CLIMATIC IMPACTS ON WATER RESOURCES WITH EMPHASIS ON THE MEDITERRANEAN REGION

Dr. A.N. ANGELAKIS, NAT. FOUNDATION FOR RURAL RES. INST. FOR AGRICULTURAL RESEARCH, WATER RESOURCES & ENVIRONMENT DEPT., PO BOX 1841, 71110 HEFAKLION, GREECE (SGEC) 910770 17-23 October 1993 : CRETE, GREECE

STRATEGIES FOR THE USE OF PALAFOCI IMATE DATA SETS IN CLIMATE MODEL INTERCOMPARISON AND EVALUATION

Dr. J. GUIOT, CNRS, LAB DE BOTANIQUE HISTOR. ET PALYNOLOGIE, FACULTE ST JEROME, BP 451, 13397 MARSEILLE CEDEX 13, FRANCE

22-26 October 1993 : AUSSOIS, FRANCE (SGEC) 921451

THE SOLAR ENGINE AND ITS INFLUENCE ON TERRESTRIAL ATMOSPHERE AND CLIMATE

Dr. E. NESME-RIBES, OBSERVATOIRE DE PARIS, DEPT D'ASTRONOMIE SOLAIRE & PLANETAIRE, 5 PLACE JANSSEN, 92195 MEUDON, FRANCE

25-29 October 1993 : PARIS, FRANCE

(SGEC) 920946

SOCIAL AND BEHAVIOURAL SCIENCES

COIN FINDS AND COIN USE IN THE ROMAN WORLD

Prof. M. R.-ALFOLDI, J.W. GOETHE-UNIV., FUNDMUNZEN DER ANTIKE, POSTFACH 11 19 32, 6000 FRANKFURT AM MAIN 11, GERMANY

24-28 March, 1993 : OXFORD, UK

BURNING ISSUES IN DISCOURSE

Prof. D. SCOTT, BRIGHTON POLYTECHNIC, INFORMATION TECHNOLOGY RESEARCH INST., LEWES ROAD, BRIGHTON

13-15 April, 1993 : MARATEA, ITALY

COLLABORATIVE DIALOGUE TECHNOLOGIES IN DISTANCE LEARNING

Prof. M.F. VERDEJO, UNED, ETS, INGENIEROS INDUSTRIALES, CIUDAD UNIVERSITARIA S/N, APTDO 60149, 28080 MADRID, SPAIN

26-29 April, 1993 : TOLEDO, SPAIN

MATHEMATICS EDUCATION AND TECHNOLOGY

Prof. C. KEITEL, TECHN. UNIV. OF BERLIN, FACHB. MATHEMATIK, MA 7-3, STRASSE DES 17 JUNI 135, D-1000 BERLIN, GERMANY

6-11 May, 1993: GRENOBLE, FRANCE

EXPLOITING MENTAL IMAGERY WITH COMPUTERS IN MATHEMATICS EDUCATION

Dr. R.J. SUTHERLAND, UNIV. OF LONDON, INST. OF EDUCATION, 20 BEDFORD WAY, LONDON WC1H OAL, UK 20-25 May 1993: OXFORD, UK

RESEARCH ISSUES AND FUTURE POTENTIAL

Prof. T.T. LIAO, SUNY AT STONY BROOK, DEPT. OF TECHNOLOGY AND SOCIETY, STONY BROOK. NY 11794-2250, USA

24-28 May, 1993 : IZMIR, TURKEY (AET) 920458

SCHIZOTYPAL PERSONALITY DISORDER

Dr. A. RAINE, UNIV. OF S. CALIFORNIA, SOCIAL SCIENCE RESEARCH INSTITUTE, LOS ANGELES, CA 90089-1111, USA 24-28 May, 1993 : IL CIOCCO, ITALY

REAL WAGES, MIGRATION AND INTERNATIONAL LABOUR MARKET INTEGRATION IN THE 19TH AND 20TH CENTURIES Dr. T.J. HATTON, UNIV. OF ESSEX, DEPT OF ECONOMICS,

WIVENHOE PARK, COLCHESTER, CO4 3SQ, UK 14-18 June, 1993: BELLAGIO, ITALY 920715

RINOCULAR STEREOPSIS AND OPTIC FLOW IN 3-D VISION Dr. B.J. ROGERS, UNIV. OF OXFORD, DEPT. OF EXPERIMENTAL PSYCHOLOGY, SOUTH PARKS RD., OXFORD OX1 3UD, UK

23-26 June, 1993: TORONTO, CANADA THE DESIGN OF MATHEMATICAL MODELLING COURSES FOR ENGINEERING EDUCATION

Prof. Y. ERSOY, MIDDLE EAST TECHNICAL UNIV., APPLIED MATHS AND MATHS EDUCATION, 06531 ANKARA, TURKEY, 12-16 July, 1993 : IZMIR, TURKEY (AET) 920443

ADVANCED EDUCATIONAL TECHNOLOGY IN SCHOOL-INDUSTRY LINK PROJECTS

Prof. D. BLANDOW, TECHNISCHE UNIVERSITEIT, DEN DOLECH 2, POSTBUS 513, 5600 MB EINDHOVEN, THE NETHERLANDS 15-22 Aug, 1993: PRAGUE, CZECHOSLOVAKIA (AET) 921438

RESEARCH EVALUATION OF COMMUNITY PSYCHIATRIC

Dr. H.C. KNUDSEN, COPENHAGEN HEALTH SERV KOMMUNEHOSPITALET, INST OF PREVENTIVE MEDICINE, 1399 COPENHAGEN K, DENMARK, 3-7 September, 1993 : IL CIOCCO, ITALY 920827

DISCOURSE, TOOLS AND REASONING: SITUATED COGNITION AND TECHNOLOGICALLY SUPPORTED **ENVIRONMENTS**

Dr. L.B. RESNICK, UNIV. OF PITTSBURGH, LEARNING RESEARCH & DEVELOPMENT CENTER, 3939 O'HARA ST. PITTSBURGH, PA 15260, USA

8-12 Sept., 1993 : IL CIOCCO, ITALY (AET) 921424

THE DESIGN OF COMPUTATIONAL MEDIA TO SUPPORT EXPLORATORY LEARNING

Dr. C.M. HOYLES, UNIV. OF LONDON, INSTITUTE OF EDUCATION/MATHEMATICS, 20 BEDFORD WAY, LONDON WC1H OAL, UK

3-7 October 1993: PACIFIC GROVE, CA, USA (AET) 920457

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