
**YORK, U.K.
25-29 SEPTEMBER 1978**

TRENDS



IN

PHYSICS

**FOURTH GENERAL CONFERENCE
of the
EUROPEAN PHYSICAL SOCIETY**

in collaboration with The Institute of Physics, U.K.

Plenary Sessions

New Developments in Elementary Particle Physics
Recent Developments in Polymer Statistics
Molecular Processes on Surfaces
Quasars, Burstars, Pulsars
The Age of Silicon
Bio-energetics
Laser Isotope Separation
Relativistic Heavy Ion Physics
Synchrotron Radiation and its Applications
Renormalization Groups in Field Theory and Phase Transitions
Physics and the Developing Countries
(Cecil Powell Memorial Lecture)

Physics and Education

Physics and Society

General Assembly of the European Physical Society

Parallel Symposia

**Modern Optics
Surface Physics
Phase Transitions
Nuclear Astrophysics**

**Hot Plasmas
Heavy Ion Physics
Synchrotron Radiation
Quarks**

Symposium A : MODERN OPTICS

Chairman : L.A.A. Thomas
Secretary : R.L. Rouse
The G.E.C. Ltd. (Hirst Research Centre)
Wembley, Middlesex HA9 7PP, U.K.

PROGRAMME*Advances in Non-Linear Optics and Materials*

- Advances in Non-Linear Optics
- Multiphoton Processes
- Non-Linear Optics in Gases and Vapours
- Efficient Harmonic Generation
- Coherent Effects in Solids

New Developments in Lasers and their Applications

- Coherent UV, VUV and X-ray Sources
- Lasers Induced Photophysics and Photochemistry
- Laser Compression and Fusion
- Ultra Short Pulses ; Studies of Large Molecules
- Wavelength Measurements / Speed of Light
- Excimer Lasers
- Infrared / Submillimetre Lasers
- Environmental Diagnostics / Pollution (Laser Control of the Atmosphere)

Deputy Chairman : E. Courtens
IBM Research Laboratory Zürich
CH-8803 Rüschlikon

Optical Electronics

- Optical Fibre Communication ; Physics Implications
- Fibre Optics
- Planar Optics
- Materials for Optical Storage and Reproduction
- Image Processing
- Developments in Holography, including Lasers

Laser Spectroscopy

- Multiphoton and Coherent Spectroscopy
- Doppler-free Spectroscopy
- Coherent anti-Stokes Raman Spectroscopy
- Molecular Spectroscopy
- Atomic Spectroscopy

Symposium B1 : SURFACE PHYSICS

Chairman : C.J. Todd
Post Office Research Station
Martlesham Heath
Ipswich IPS 7RE, U.K.

PROGRAMME*Photoemission from Solid Surfaces, using Synchrotron and Conventional UV Sources*

- Application of Synchrotrons to the Study of Solids
- Structural Implications in Angular Photo and Auger Emission
- Application of Photoemission to Disordered Systems

Magnetism and Phase Transitions at Surfaces

- Monolayer Magnetic Materials
- Spin Polarised Photoemission from Ferromagnetic Materials
- Theory of Surface Magnetism and Phase Transitions
- Phase Transitions in Physisorbed Systems
- Phase Transitions at Clean Metal Surfaces

Secretary : R. Farrow
RSRE
St. Andrews Road
Malvern, Worcs. WR14 3PS, U.K.

Particle Beam Condensation, Scattering and Excitation at Surfaces

- Condensation and Growth of GaAIAs by Molecular Beam Epitaxy
- Neutral Beam Diffraction
- Rutherford Back Scattering from Metal Surfaces
- Molecular Vibrations on Surfaces by Electron Loss Spectroscopy

Semiconductor Surfaces and Interfaces

- Theory of Elemental Semiconductor Surface and Interface Electronic States
- Experimental Measurement of Semiconductor Surface and Interface States
- Polar Surfaces of Compound Semiconductors
- Theory of Electronic Surface and Interface States for Compound Semiconductors

Symposium B2 : PHASE TRANSITIONS

Secretary : H. Thomas
Inst. for Theoretical Physics
University of Basel
Klingelbergstrasse 82
CH-4056 Basel

PROGRAMME*New Developments in Critical Behaviour*

- Field Theory and Renormalization Group
- Critical Dynamics
- First-Order Transitions

Low Dimensional and Disordered Systems

- Phase Transitions at Surfaces and on Membranes
- Phase Transitions in Disordered Systems
- Critical Behaviour of Impurities

Non-equilibrium Phase Transitions

- Hydrodynamic Instabilities
- Turbulence
- Current Instabilities

Symposium C1 : NUCLEAR ASTROPHYSICS

Secretary : A. Edwards
Dept of Astrophysics, University of Oxford
South Parks Road
Oxford OX1 3RQ, U.K.

PROGRAMME*The Early Stages of the Universe*

- Emergence into the Particle Regime
- Baryon Number, Lepton Numbers
- Alternatives to, or Modifications of, the Hot Big Bang
- Nucleogenesis versus Different Cosmologies

The Solar System

- The Solar Neutrino Problem
- Planetary System
- Isotopic Abundance Determinations
- Nucleocosmochronology
- Relative Importance of Various Nucleosynthesis Processes

The Galaxy

- Supernovae, Novae and Stellar Evolution
- Nucleosynthesis Problems
- Neutrinos in Supernova Collapse
- Pyconuclear Reactions
- Equation of State at Very High Density
- Low Energy Nuclear X-Sections and Reaction Rates
- Super Heavy Elements
- Neutron Stars
- The Chemical Evolution of the Galaxy
- Cosmic Rays
- Sources
- Isotropy versus Energy
- Composition versus Energy
- Spallation and Nuclear Fragmentation Processes at High Energies
- Propagation

PROGRAMME OF SYMPOSIA

Symposium C2 : HOT PLASMA IN SPACE AND LABORATORY

Secretary : F. Engelmann
FOM-Instituut voor Plasma-Fysica
Rijnhuizen, P.O. Box 7
Jutphaas NL

PROGRAMME

Collective Plasma Dynamics

- Plasma Turbulence (Review)
- Turbulence Induced by Relativistic Electron Beams
- Energy Transfer in Beam-produced Plasmas
- Magnetohydrodynamic Instabilities in Toroidal Plasmas

Wave-Particle Interaction in Astrophysical Plasmas

- Particle Acceleration
- Energy Build-up and Release

Diagnostics

- Spectroscopy of Hot Plasmas
- Cyclotron Radiation from Magnetically Confined Plasmas

Symposium D : HEAVY ION PHYSICS

Secretary : K. Bethge
Institut für Kernphysik
August-Euler-Strasse 6
D-6000 Frankfurt/Main 90

PROGRAMME

Nuclear Physics

- Pion Condensation
- Coulomb Processes
- Super Heavy Elements
- Nuclear Reactions
- Yrast-traps etc.

Atomic Physics

- Uranium - Uranium Collisions
- Inner Shell Processes, Theory
- Inner Shell Processes, Experimental
- UV and X-ray Lasers
- Transient Field Effects
- Heavy Ions in Solids

Applications and Equipment

- Heavy Ion Facilities in Europe
- Ion Implantation and Material Science
- Radiation Damage

Symposium E1 : SYNCHROTRON RADIATION

Secretary : S. Leach
Labo. de Photophysique Moléculaire du
CNRS
Université de Paris-Sud, Bâtiment 213
F-91406 Orsay

PROGRAMME

- Atomic Physics and Synchrotron Radiation
- Recent Advances in the Dynamics of Photoselected Excited States of Molecules and Ions
- Elastic Scattering : Structural Applications to Biology
- Synchrotron Radiation and X-ray Crystallography
- EXAFS and its use in the Study of Glass
- X-ray Imaging : Lithography, Microscopy and Topography
- Application of Synchrotron Radiation to Study of Solids
- Theory of Coherence Effects in Synchrotron Radiation
- Synchrotron Radiation and Galactic X-ray Sources
- State of the Art of Instrumentation or Hot Topic '78

Symposium E2 : QUARKS

Secretary : G. Preparata
TH Division
CERN
CH-1211 Geneva 23

PROGRAMME

Quark Spectroscopy

- Mesons and Baryons made of « Old » Quarks
- Mesons and Baryons made of « New » Quarks

Quarks and High Energy Reactions

- Quarks and Low p_T Physics
- Quarks and High p_T Physics
- Deep Inelastic Phenomena and the Quark-parton

Quark Confinement

- « Conventional » and « Unconventional » Ideas about the Non-observation of Quarks

To make
a preliminary
registration or,
to ask for
further information
complete form
overleaf

Form to be returned to :

**The Meetings Officer
The Institute of Physics
47, Belgrave Square
LONDON SW1X 8QX
England**

DRAFT PROGRAMME

	MONDAY 25	TUESDAY 26	WEDNESDAY 27	THURSDAY 28	FRIDAY 29
MORNING	Opening PLENARY SESSION	PLENARY SESSION	Modern Optics Nuclear Astrophysics Heavy Ion Physics Quarks Surface Physics Education	PLENARY SESSION	Modern Optics Nuclear Astrophysics Heavy Ion Physics Quarks Synchrotron Radiation Phase Transitions
AFTERNOON	Modern Optics Surface Physics Phase Transitions Hot Plasmas Heavy Ion Physics Synchrotron Radiation Discussion groups on Physics and Society	Modern Optics Surface Physics Phase Transitions Hot Plasmas Heavy Ion Physics Synchrotron Radiation Discussion groups on Physics and Society	EXCURSIONS	Modern Optics Surface Physics Nuclear Astrophysics Quarks Heavy Ion Physics Synchrotron Radiation	PLENARY SESSION Closure
EVENING	Powell Memorial Lecture	GENERAL ASSEMBLY OF EPS		Physics and Society	

SCIENTIFIC PROGRAMME

The Conference will be held at York University which is situated a few kilometres outside the ancient cathedral city of York.

Some of the symposia will include contributed papers and/or poster sessions, others will consist only of invited and review (rapporteur) papers. Some of the topics will be discussed in joint sessions where appropriate. Further details will be given in Bulletin No. 2 which will be sent in the Spring to those completing the form below.

Requests for information or proposals concerning the Symposia programmes may be addressed to any of the organizers shown under each heading, or to other members of the International Programme Committee.

ACCOMMODATION AND TRAVEL

Ample accommodation will be available on the campus of York University for participants and accompanying persons. Over 900 single rooms will be available as well as double rooms.

British Airways has been appointed as the official conference airline and is hoping to organize reduced rate group travel from key centres in Europe. British Rail is also trying to arrange special reduced rate tickets from centres within the U.K.

INTERNATIONAL PROGRAMME COMMITTEE

P. Radvanyi (Chairman), Inst. de Physique Nucléaire, Faculté des Sciences, BP 1, F-91405 Orsay;
 O.S. Heavens (Chairman Local Organising Committee), University of York, Heslington, York YO1 5DD UK;
 K. Bethge, Frankfurt/M; H.B.G. Casimir, Eindhoven;
 E. Courtens, Ruschlikon; A. Edwards, Oxford;
 F. Engelmann, Jutphaas; M. Guenin, Geneva;
 D.J. Jacobs, York; S. Kapitza, Moscow; S. Leach, Paris;
 A. Loesche, Leipzig; W. Martienssen, Frankfurt/M;
 W.J. Merz, Zurich; G. Preparata, CERN;
 B. Robinson, UNESCO; G. Thomas, EPS;
 H. Thomas, Basle; L.A. Thomas, Wembley;
 C. Todd, Ipswich; I. Ursu, Bucharest;
 H. van Regemorter, Meudon; Z. Wilhelmi, Warsaw.

GRANTS TO YOUNG PHYSICISTS

The Executive Committee will be able to grant from the EPS Conference Fund a limited number of scholarships for attending the York Conference to young physicists not in a position to obtain full financial support from other sources. Grants will be allocated either for travel expenses or accommodation in York.

Detailed information on conditions and an application form may be obtained on request from the EPS Secretariat in Geneva : P.O. Box 39 CH-1213 Petit-Lancy 2

EPS 4th. General Conference

Name and Title : _____

First Name : _____

Affiliation : _____

Mailing Address : _____

I aim to attend the Conference

- Alone
 Accompanied by non-participants

I am interested in the following Symposia :

- A; B1; B2; C1; C2; D; E1; E2

(Please indicate in appropriate)

**Please
use
Block
Letters
on
Form**

Bulletin No. 1