

Research Fields in Physics

Seventh Edition

**The Institute of Physics
Bristol and London**

Research Fields in Physics at United Kingdom Universities and Polytechnics

Seventh Edition

The Institute of Physics
Bristol and London

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261 *Department of Mathematics*
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262 *Department of Metallurgy*
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263 *Department of Physics*
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265 *Department of Metallurgy and Materials Technology*
- University of Surrey
266 *Department of Physics*
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268 *Astronomy Centre*
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269 *School of Chemistry and Molecular Sciences*
- University of Sussex
270 *School of Mathematical and Physical Sciences*
- The New University of Ulster
273 *Department of Physics*
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276 *Department of Physics*
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278 *Department of Physics*
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280 *Department of Physical Chemistry*

- University of Wales: University College, Cardiff
282 *Department of Physics*
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285 *Department of Physics, Electronics and Electrical Engineering*
- University of Wales: University College, Swansea
289 *Department of Physics*
- University of Warwick
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294 *Department of Physics*
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Polytechnics

- Brighton Polytechnic
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304 *Department of Applied Physics*
- Liverpool Polytechnic
305 *Department of Physics*
- City of London Polytechnic
306 *Department of Physics*
- Middlesex Polytechnic
307 *School of Applied Science: Urban Pollution Research Centre*
- Middlesex Polytechnic
308 *School of Electronic and Electrical Engineering*
- North East London Polytechnic
309 *Department of Physical Sciences*
- Polytechnic of the South Bank
310 *School of Physics*
- Thames Polytechnic
312 *Department of Materials Science and Physics*

	Manchester Polytechnic
313	<i>Department of Physics, Mathematics and Computing</i>
	Newcastle upon Tyne Polytechnic
314	<i>School of Physics</i>
	North Staffordshire Polytechnic
315	<i>Department of Physics</i>
	Oxford Polytechnic
316	<i>Department of Geology and Physical Sciences</i>
	Plymouth Polytechnic
317	<i>Department of Environmental Sciences</i>
	Portsmouth Polytechnic
318	<i>Department of Mathematics and Statistics</i>
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Preface

This seventh edition of *Research Fields in Physics*, compiled by The Institute of Physics with the support of the Standing Conference of Professors of Physics, continues the well established pattern of producing a book covering physics research at universities and polytechnics throughout the United Kingdom.

In addition to Physics Departments, a large number of Astronomy, Chemistry, Engineering, Mathematics, Medical Physics and Materials Science Departments are included. These departments have described the physics research programmes in which they are involved, but it must be pointed out that physics research represents only part of the total research they do in their own fields.

Descriptions of the research in progress, together with the names of the personnel involved, are given under the individual research fields of each department. Name and subject indexes add to the Directory's value as a standard work of references of use to all with active interests in the physical sciences.

Acknowledgments

The Institute of Physics would like to thank all the contributors for their cooperation in producing this edition.

Universities

UNIVERSITY OF ABERDEEN
Department of Bio-Medical Physics and Bio-Engineering

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Head of Department: Professor J. R. Mallard

RESEARCH FIELDS

RADIONUCLIDE LOCALISATION TECHNIQUES

Senior Staff: Dr P. P. Dendy, Dr D. Gvozdanovic, Dr P. Sharp,
Dr N. Evans

Other Academic Personnel: Dr Anne Reid, Dr H. Gemmell, Mr D. R. Parry-
Jones, Mr T. A. Bailey, Mrs C. R. Ling, Mrs J. William-
son, Mrs H. Oliver, Dr M. Norton

Total Academic Personnel: 14 (11 Staff, 2 Research Fellows, 1 Research
Student)

Research Programme:

- (a) Dynamic studies with radionuclides and gamma-camera.
- (b) Clinical trials in Nuclear Medicine.
- (c) Quantitation of Radionuclide Images.
- (d) Ultra-high sensitivity radionuclide imaging.
- (e) Comparison of display systems with regard to detectability of weak images in radionuclide imaging devices.
- (f) Use of statistical bandwidths in radionuclide imaging.
- (g) Gallium-67 as a tumour-locating agent in radionuclide imaging.
- (h) Development of tomographic methods in radionuclide imaging.
- (i) In vitro studies of the properties of human tumour cells.

ULTRASONICS IN MEDICINE

Senior Staff: Dr D. J. Watmough

Other Academic Personnel: Dr C. Martin, Dr L. Eastwood, Mrs B. Pratt,
Mr A. Law, Mr K. Hynynen.

Total Academic Personnel: 6 (2 Staff, 2 Research Officers, 2 Research
Students)

Research Programme

- (a) Interaction of ultrasound with biological materials.
- (b) Ultrasound induced hyperthermia.
- (c) Ultrasonic spectroscopy as an aid to diagnosis.
- (d) Real time scanning by multi-element arrays.
- (e) Ultrasound dosimetry.

University of Aberdeen
Department of Bio-Medical Physics and Bio-Engineering

ESR and NMR in BIOLOGY and MEDICINE

Senior Staff: Dr J. M. S. Hutchison, Dr M. A. Foster.
Other Academic Personnel: Dr T. Pocklington, Mrs C. R. Ling,
Mr R. Selbie, Mr G. Johnson, Mr T. Redpath.
Total Academic Personnel: 5 (2 Staff, 3 Research Assistants,
2 Research Students).

Research Programme:

- (a) Human and animal in vivo NMR imaging.
- (b) ESR studies of normal and pathological tissues.
- (c) NMR relaxation studies of normal and pathological tissues.

RADIATION HEALTH PHYSICS (IONISING AND NON-IONISING)

Senior Staff: Mr B. Heaton, Mr A. Murray
Other Academic Personnel: Mr A. Ghosh
Total Academic Personnel: 3

Research Programme

- (a) Environmental Monitoring.
- (b) Thermoluminescent dosimetry.
- (c) Medical Exposures.

RADIATION PHYSICS

Senior Staff: Dr K. V. Ettinger, Mr U. Miola, Dr D. Cumpstey
Other Academic Personnel: Mr D. H. Temperton
Total Academic Personnel: 4 (3 Staff, 1 Research Student)

Research Programme

- (a) Development of tissue-equivalent dosimetry systems.
- (b) Development of high level dosimetry for sterilisation of materia medica.
- (c) Development of neutron targets for radiotherapy.
- (d) Electronic methods of quality control in radiotherapy.
- (e) Production of short-lived radionuclides for localization studies.

NON-IONISING RADIATION THERAPY

Senior Staff: Mr D. D. Lindsay, Dr K. V. Ettinger, Dr D.J. Watmough,
Dr J. G. Mitchell, Dr M. A. Foster, Dr D. Cumpstey
Other Academic Personnel: Mr K. Hynynen
Total Academic Personnel: 5 (4 Staff, 1 Research Student)