

## TABLE OF CONTENTS

### Volume 15

		<i>Page</i>
<b>Session E: Controlled nuclear fusion</b>		
P/195	Snell <i>et al.</i> . . . . .	Controlled fusion research in the United States of America . . . 3
P/297	Арцимович . . . . .	Исследования по проблеме управляемого ядерного синтеза и физике высокотемпературной плазмы в СССР . . . 17
	<i>Artsimovich</i> . . . . .	<i>Controlled thermonuclear fusion and high-temperature plasma physics research in the USSR</i>
P/881	Watson-Munro . . . . .	Progress in controlled fusion and plasma physics in countries in the rest of the world—outside Europe, North America and the USSR . . . . . 28
P/882	Schlüter . . . . .	Controlled nuclear fusion research in Western Europe . . . . . 35
	Record of session E . . . . .	42
	Compte rendu de la séance E . . . . .	50
	Протокол заседания E . . . . .	59
	Acta de la sesión E . . . . .	68
 <b>Session 4.1: Direct conversion of heat to electricity</b>		
	<i>Magnetohydrodynamics</i>	
P/45	Ricateau . . . . .	Etudes préliminaires sur les convertisseurs magnétohydrodynamiques fonctionnant hors d'équilibre thermodynamique . . . . . 81
		<i>Preliminary study of MHD converters operating in thermodynamic non-equilibrium</i>
P/133	Lindley . . . . .	Nuclear magnetoplasma dynamic energy conversion . . . . . 90
P/693	Dzung . . . . .	Thermal problems of gas-cooled reactors for magnetohydrodynamic power generation . . . . . 98
	<i>Thermionic methods</i>	
P/44	Devin <i>et al.</i> . . . . .	Conversion directe de la chaleur en électricité dans les piles . . . 104
		<i>Direct conversion of heat into electricity in reactors</i>
P/132	Dunn, Adam . . . . .	Fission-heated thermionic diodes . . . . . 114
P/219	Salmi <i>et al.</i> . . . . .	Thermionic diodes for direct-conversion reactors . . . . . 123
P/317	Бондаренко <i>et al.</i> . . . . .	Теоретические и экспериментальные исследования, связанные с разработкой термоэлектронных реакторов-преобразователей . . . . . 131
	<i>Bondarenko et al.</i> . . . . .	<i>Theoretical and experimental studies relating to the development of thermionic reactor-converters</i>

			Page
P/873	Миллионщиков <i>et al.</i> ... <i>Millionshchikov et al.</i> ....	Высокотемпературный реактор-преобразователь «Ромашка» ..... <i>The high-temperature direct conversion reactor "Romashka"</i>	146
<i>Thermoelectric methods</i>			
P/217	Morse, Harvey .....	Isotopic power sources coupled with thermoelectric converters	155
P/218	Dieckamp <i>et al.</i> .....	Reactor direct-conversion units .....	164
P/318	Воронин <i>et al.</i> .....	Термоэлектрические генераторы с изотопным источником тепла .....	176
	<i>Voronin et al.</i> .....	<i>Radioisotope-fuelled thermoelectric generators</i>	
Record of session 4.1 .....			185
Compte rendu de la séance 4.1 .....			188
Протокол заседания 4.1 .....			191
Acta de la sesión 4.1 .....			194
 Session F: Applications of isotopes and radiation sources in the physical sciences			
P/196	Aebersold .....	Advances in radioisotope production and utilization in science and industry .....	201
P/298	Грузин .....	Применение изотопов и источников излучения в исследованиях в области физических и химических наук ....	215
	<i>Gruzin</i> .....	<i>Use of isotopes and radiation sources in physical and chemical research</i>	
P/875	Payne <i>et al.</i> .....	The role of radioisotope techniques in hydrology .....	226
Record of session F .....			239
Compte rendu de la séance F .....			241
Протокол заседания F .....			244
Acta de la sesión F .....			247
 Session G: Applications of isotopes and radiation sources in the life sciences			
P/874	Chagas .....	Les traceurs en biologie .....	253
		<i>Tracers in biology</i>	
P/876	Broeshart <i>et al.</i> .....	Advances in the use of isotopes and radiation sources in agriculture and food science .....	264
P/880	Belcher <i>et al.</i> .....	Advances in the use of isotopes and radiation sources in medicine	275
Record of session G .....			286
Compte rendu de la séance G .....			290
Протокол заседания G .....			294
Acta de la sesión G .....			298

## Session 4.2: Miscellaneous applications of atomic energy

*Chemical applications*

P/112	Minc <i>et al.</i> .....	Continuous methods of tracing chemical changes in fluids under gamma-irradiation .....	305
P/113	Jeżowska-Trzebiatowska, Kaleciński .....	Radiation chemistry in alkaline solutions .....	314
P/292	Manowitz <i>et al.</i> .....	The development of chemonuclear processes .....	322
P/542	Herre <i>et al.</i> .....	The use of power reactors as large-scale radiation sources for radiation-chemical production .....	332

*Applications in industry, engineering and physics*

P/92	Neel .....	Une nouvelle structure ordonnée, créée par irradiation aux neutrons <i>A new ordered structure created by neutron irradiation</i>	339
P/114	Tavares <i>et al.</i> .....	Pipeline wear in iron ore transportation .....	341
P/198	Machurek <i>et al.</i> .....	Current status and future prospects for commercial radiation processing .....	347
P/291	Johnson, Higgins .....	Engineering applications of nuclear explosives: project PLOW-SHARE .....	356
P/389	Полак .....	Радиационно-термический крекинг (РТК) нефти, нефтепродуктов и углеводородных газов .....	369
	Polak .....	<i>Radiation-thermal cracking of crude oil stocks and hydrocarbon gases</i>	
P/497	del Val <i>et al.</i> .....	Algunas aplicaciones de los elementos radiactivos como trazadores en obras públicas .....	379
		<i>Some applications of radioactive tracers in civil engineering</i>	
P/583	Селинов Selinov .....	Новые изотопы и систематика нуклидов .....	389
		<i>New isotopes and the systematics of nuclides</i>	
P/830	Colombo <i>et al.</i> .....	Contribution to the understanding of the natural evolution of petroleum: radiation effects on crude oils .....	402
P/854	Grimanis <i>et al.</i> .....	Determination of trace elements in the Greek lakes by neutron-activation analysis .....	412
P/862	Cless-Bernert <i>et al.</i> .....	Two radioactive sources used in an unconventional way .....	420
P/879	Наджаков .....	О научно-исследовательской деятельности по использованию атомной энергии в мирных целях в Народной Республике Болгарии (Обзорный доклад) .....	425
	Nadzhakov .....	<i>General review of scientific work on the peaceful uses of atomic energy in the People's Republic of Bulgaria</i>	

*Methods and instrumentation*

P/197	Guinn .....	Advance in neutron activation analysis .....	433
P/457	Abdel-Rassoul <i>et al.</i> .....	Separation and purification of certain radioisotopes for medical use .....	445
P/458	Ghanem .....	New developments in the accelerated isotopic labelling of organic compounds .....	452
P/825	Amiel .....	Neutron counting in activation-analysis .....	462

		<i>Page</i>
P/828	Platzek, Meyer . . . . .	Choice of most suitable radiation characteristics for any given gauging problem . . . . . 474
P/829	El-Shamy <i>et al.</i> . . . . .	Determination of certain trace impurities in pure lead and aluminium by neutron-activation analysis . . . . . 484
P/855	Mlinko, Szarvas . . . . .	Gas-phase methods operating at atmospheric pressure for the analysis of soft beta-emitting isotopes . . . . . 492
<i>Applications in the life sciences</i>		
P/841	Abdel-Rassoul <i>et al.</i> . . . .	Biological disposition of anti-bilharzial antimony drugs: estimation of antimony in body fluids and parasites by activation analysis . . . . . 501
P/850	Malavolta <i>et al.</i> . . . . .	The effect of liming on the availability of phosphate in "cerrado" soils of Brazil . . . . . 507
P/853	Metz, Wyndham . . . . .	Radioisotope studies of adaptation to residence at high altitudes and to heat stress . . . . . 511
P/856	Kent . . . . .	The effect of tritiated thymidine and gamma-irradiation on the mortality of <i>Drosophila melanogaster</i> larvae . . . . . 518
Record of session 4.2 . . . . . 523		
Compte rendu de la séance 4.2 . . . . . 526		
Протокол заседания 4.2 . . . . . 529		
Acta de la sesión 4.2 . . . . . 532		