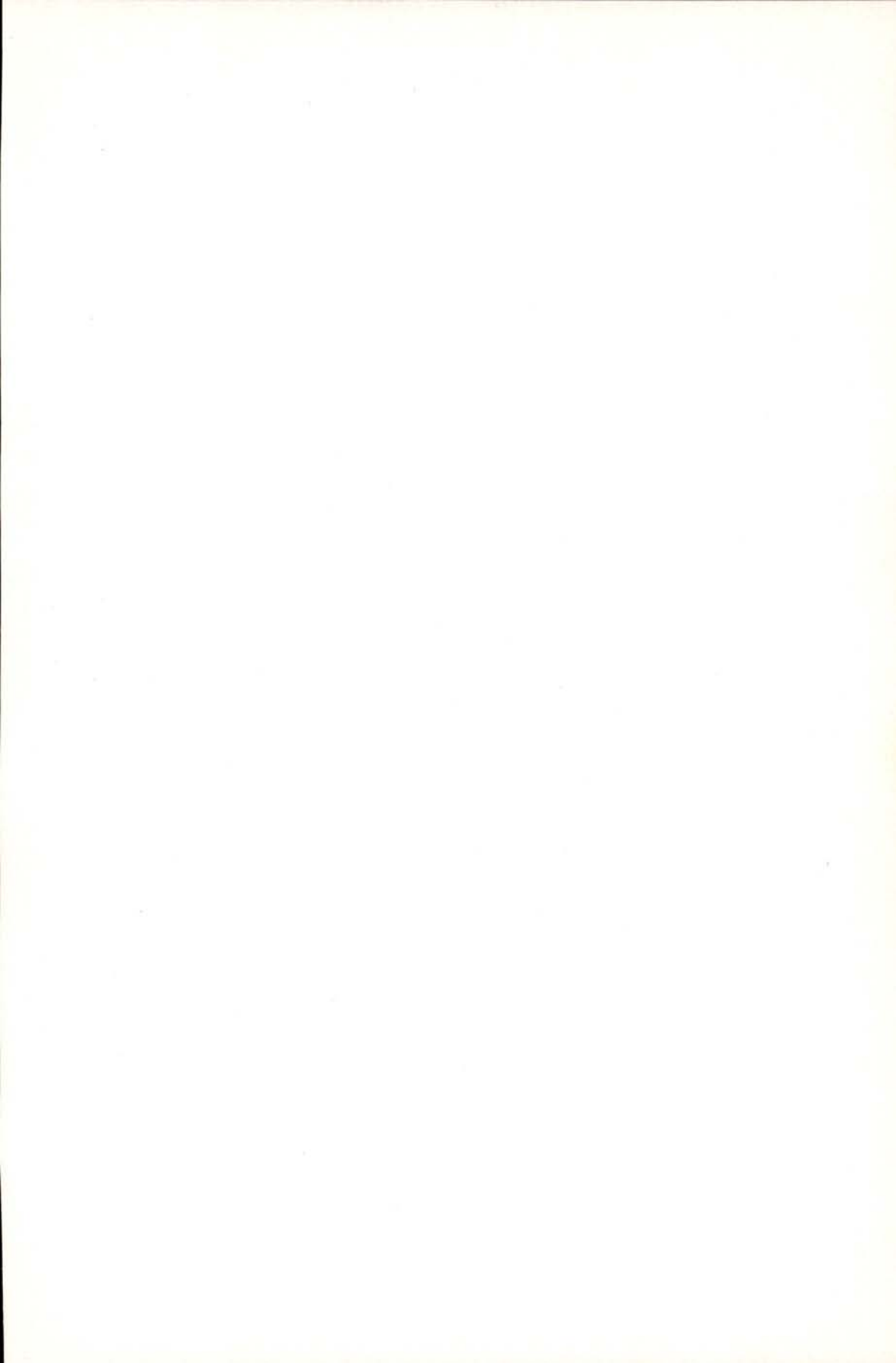


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MANUEL VALADARES

1904 - 1982

Few Portuguese names stand out, in the field of Atomic and Nuclear Physics, as brightly as that of Manuel Valadares.

Born in Lisbon, on February 26th, 1904, Manuel José Nogueira Valadares studied Physics in the Faculty of Science, University of Lisbon, where he later became a lecturer, after post-graduate studies in France.

He received his fundamental research training at the "Laboratoire Curie", Paris, obtaining his PhD in 1933, under Mme Pierre Curie; he was awarded the mention "très honorable" for his thesis "Contribution à la spectrographie, par diffraction cristalline, du rayonnement gamma". During his stay in France he worked also with Dr. S. Rosenblum in the "Laboratoire de l'Aimant Permanent", Bellevue.

In 1940 he moved to Italy, where he carried out research in the "Istituto di Volta" and in the "Laboratorio di Fisica dell'Istituto di Sanità Pubblica".

Having returned to Portugal in 1941, he played a fundamental role in starting Atomic and Nuclear research at the "Laboratório de Física" of the Faculty of Science, Lisbon. Some graduate students obtained their PhD under his supervision and profited by his helpful advice and instructive criticism.

In June 1947 he was dismissed due to increasingly oppressive government measures and, invited by Mme Joliot-Curie, went to France, where he held several academic positions with great success.

Manuel Valadares soon became "Maître de Recherches" and, in 1957, was appointed "Directeur de Recherches". He was "Directeur du Centre de Spéctrométrie Nucléaire et de Spéctrométrie de Masse", Orsay, until 1968, when he wrote a letter of resignation to the "Directeur du C.N.R.S.".

He worked with S. Rosenblum on the development of a technique of magnetic alpha spectrometry and proposed, with him, disintegration schemes for some nuclides.

X-Ray spectroscopy techniques were used by him for the study of L satellites on heavy elements and L radiation intensities.

Manuel Valadares published, often in collaboration with his colleagues or students, over 70 papers, concerned mostly with his research in experimental Atomic and Nuclear Physics; but he was also concerned with problems of history of physics, science policy, application of physics to the study of works of art, etc.

He was widely respected for his modesty and probity and had profound influence on many scientists, who benefited both from his sound advice and his personal prestige.

He was awarded many honours:

"Prémio Artur Malheiros" from the "Academia de Ciências de Lisboa" (1930) for his work "Análise, por espectrografia de Raios X, de transmutações naturais e provocadas";

"Prix La Caze" from the "Académie des Sciences de Paris" (1966), in recognition for his research in alpha radiation spectrometry;

Degree "Doctor Honoris Causa" from the University of Lisbon (1981);

He was appointed, in 1969, by the "Directoire du C.N.R.S.", "Directeur Honoraire du Centre de Spéctrométrie Nucléaire et de Spéctrométrie de Masse".

He was elected honorary member of the Portuguese Physical Society on the occasion of its First National Conference (1978).

The Portuguese government conferred on Prof. Manuel Valadares, in 1979, the "Grau de Grande Oficial da Ordem Militar de Sant'Iago da Espada"; this honour was bestowed upon him in recognition of services rendered to his country.

Manuel Valadares died on the 31st of October, 1982, at the age of 78, in Paris. His contribution to Atomic and Nuclear Physics was highly regarded and his role as a scientist was, in many instances, of the highest importance; Manuel Valadares was one of the founders of *Portugaliae Physica*.

LIST OF PUBLICATIONS

RESEARCH IN ATOMIC AND NUCLEAR PHYSICS

L'antagonisme des radiations dans leurs effets sur la plaque photographique

(with E. Wassmer and M. Patry)

Helv. Phys. Acta **3** (1930) 391; and Arquivo de Patologia **3** (1931) 41

Figures de distribution du dépôt actif sur les électrodes

(with S. Rosenblum)

C. R. Acad. Sc. Paris **192** (1931) 939

Sur la structure fine des rayons alpha du ThC

(with S. Rosenblum)

C. R. Acad. Sc. Paris **194** (1932) 967

Spectrographie, par diffraction cristalline, des rayons gamma et X de la famille du Thorium

C. R. Acad. Sc. Paris **196** (1933) 856

Spectrographie, par diffraction cristalline, des rayons gamma et X de la famille du Radium

C. R. Acad. Sc. Paris **197** (1933) 144

Contribution à la spectrographie, par diffraction cristalline, du rayonnement gamma

Thèse, Paris, 1933; and Annales de Physique **2** (1934) 197

Étude des satellites L_{α} de l'élément 82 (Pb)

(with F. Mendes)

C. R. Acad. Sc. Paris **206** (1938) 744

Studio dei satelliti delle righe α dello spettro L del piombo

La Ricerca Scientifica **11** (1940) 270

Contributo allo studio degli spettri γ e X molli dei prodotti di disintegrazione del radon

Rend. R. Accad. d'Italia **2** (1940) 351; and Rend. Ist. Sanità Pub. **3** (1941) 953

- Gli spettri γ e X dei derivati del radon nella regione 700 à 1300 U.X.
Rend. R. Accad. d'Italia **2** (1941) 1049; and Rend. Ist. Sanità Pub. **4**
(1941) 713
- La loi photoélectrique d'Einstein et le phénomène de conversion
interne
Portgal. Phys. **1** (1943) 35
- Le spectre L des rayons X du radium D
Portgal. Phys. **1** (1943) 73
- O núcleo atómico e os espectros de riscas dos raios X
Lisboa (1944)
- Influence de la tension d'excitation sur les satellites des raies
 L_{α} de l'or
(with F. Mendes)
C. R. Acad. Sc. Paris **226** (1948) 1185
- Structure fine du spectre magnétique des rayons α de l'ionium
(with S. Rosenblum and J. Vial)
C. R. Acad. Sc. Paris **227** (1948) 1088
- Le spectre du rayonnement alpha émis par RTh + ThX
(with S. Rosenblum and M. Perey)
C. R. Acad. Sc. Paris **228** (1949) 385
- Les spectres L et gamma émis par la transmutation RaD \rightarrow RaE
(with L. Salgueiro)
Portgal. Phys. **3** (1949) 21
- Structure fine du spectre magnétique alpha du thorium X
(with S. Rosenblum, M. Perey and J. Vial)
C. R. Acad. Sc. Paris **229** (1949) 1009
- Nouvelle détermination de quelques rayons des noyaux radioactifs
lourds
(with S. Rosenblum)
C. R. Acad. Sc. Paris **230** (1950) 384
- Structure fine du spectre magnétique alpha du plutonium 239
(with S. Rosenblum and B. Goldschmidt)
C. R. Acad. Sc. Paris **230** (1950) 638
- Spectrographie par diffraction cristalline du rayonnement electro-
magnétique du RaD
(with M. Frilley and B. G. Gokhale)
C. R. Acad. Sc. Paris **232** (1951) 50

- Spectre L émis dans la transmutation $\text{RaD} \rightarrow \text{RaE}$
(with M. Frilley and B. G. Gokhale)
C. R. Acad. Sc. Paris **232** (1951) 157
- Le spectre beta de conversion interne émis dans la transmutation
ionium \rightarrow radium
(with S. Rosenblum)
C. R. Acad. Sc. Paris **232** (1951) 501
- Sur l'influence du moment magnétique nucléaire sur la largeur
des raies dans les spectres de rayons X
(with M. Frilley and B. G. Gokhale)
C. R. Acad. Sc. Paris **233** (1951) 1183
- Spectre β de conversion interne émis dans la transmutation
thorium X \rightarrow thoron
(with S. Rosenblum and M. Guillot)
C. R. Acad. Sc. Paris **234** (1952) 1767
- Les spins des niveaux des noyaux pairs-pairs et la théorie de
l'émission α
(with S. Rosenblum)
C. R. Acad. Sc. Paris **234** (1952) 2359
- Spectre d'électrons de conversion interne émis dans la trans-
mutation radiothorium \rightarrow thorium X
(with S. Rosenblum and M. Guillot)
C. R. Acad. Sc. Paris **235** (1952) 238
- Sur les niveaux nucléaires (premiers états excités)
(with S. Rosenblum)
C. R. Acad. Sc. Paris **235** (1952) 711
- Classification des "rayons" des noyaux émetteurs α en fonction
de l'excès neutronique
(with S. Rosenblum)
C. R. Acad. Sc. Paris **236** (1953) 196
- Sur les rayonnements émis au cours de la transmutation
 $\text{RaAc} \rightarrow \text{AcX}$ (I)
(with M. Frilley and S. Rosenblum)
J. de Phys. et Rad. **15** (1954) 45
- Sur la structure fine α de l'ionium
(with S. Rosenblum, J. Blandin-Vial and R. Bernas)
C. R. Acad. Sc. Paris **238** (1954) 1496

- Sur le spectre d'électrons de conversion émis par $^{241}\text{Am} \rightarrow ^{237}\text{Np}$
 (with J. Milsted and S. Rosenblum)
 C. R. Acad. Sc. Paris **239** (1954) 259
- Sur le schéma de niveaux du ^{237}Np
 (with J. Milsted and S. Rosenblum)
 C. R. Acad. Sc. Paris **239** (1954) 700
- Les spectres d'électrons de conversion émis dans les transmutations radiothorium \rightarrow thorium X \rightarrow thoron
 (with S. Rosenblum and M. Guillot)
 J. de Phys. et Rad. **15** (1954) 129
- Le spectre d'électrons de conversion émis dans la transmutation ionium \rightarrow radium
 (with S. Rosenblum and R. Bernas)
 C. R. Acad. Sc. Paris **239** (1954) 759
- Sur les rayonnements émis au cours de la transmutation $\text{RaAc} \rightarrow \text{AcX}$ (II)
 (with M. Frilley, S. Rosenblum and G. Boussières)
 J. de Phys. et Rad. **16** (1955) 378
- Sur la largeur propre des raies d'électrons de conversion
 J. de Phys. et Rad. **16** (1955) 542
- Spectrographe magnétique avec pré-accélération pour l'étude d'électrons de faible énergie
 (with S. Rosenblum and J. Sant'Ana Dionísio)
 J. de Phys. et Rad. **17** (1956) 112
- Sur le rayonnement γ émis au cours de la transmutation $\text{RaD} \rightarrow \text{RaE}$
 (with M. Frilley)
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- Etudes sur la transmutation $^{241}\text{Am} \rightarrow ^{237}\text{Np}$
 (with S. Rosenblum and J. Milsted)
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- Coefficients de conversion interne dans les niveaux L_I , L_{II} , L_{III}
 (with M. Frilley)
 J. de Phys. et Rad. **20** (1959) 60
- Le spectre d'électrons de conversion émis au cours de la transmutation $^{233}\text{Pa} \rightarrow ^{233}\text{U}$
 (with G. Albouy)
 J. de Phys. et Rad. **20** (1959) 816

- Le spectre d'électrons de conversion (faibles énergies) et les spectres Auger (L, M, N) émis au cours de la transmutation β du protactinium 233
(with G. Albouy)
C. R. Acad. Sc. Paris **250** (1960) 2877
- Sur le rayonnement γ émis au cours de la transmutation thorium 234 (uranium X₁) \rightarrow protactinium 234 métastable (uranium X₂)
(with R. Foucher, J. Merinis and A. de Pinho)
C. R. Acad. Sc. Paris **255** (1962) 882
- Schéma des niveaux excités du protactinium 234
(with R. Foucher, J. Merinis and A. de Pinho)
C. R. Acad. Sc. Paris **255** (1962) 1916
- Interprétation du schéma de niveaux du ²³⁴Pa, noyau impair-impair
(with R. Foucher, J. Merinis and A. de Pinho)
Journal de Physique **24** (1963) 203
- Quelques résultats nouveaux sur la désintégration ²³¹Pa \rightarrow ²²⁷Ac
(with H. Abou-Leila, R. Foucher, A. de Pinho and N. Perrin)
Journal de Physique **24** (1963) 857
- Sur l'existence de bandes satellites dans les spectres d'électrons de conversion interne
(with R. J. Walen and Ch. Briançon)
C. R. Acad. Sc. Paris **263** (1966) 313
- Sur le spectre d'électrons de conversion interne émis par des atoms en vol: cas de la désintégration α de l'américium 241
(with Ch. Briançon and R. J. Walen)
C. R. Acad. Sc. Paris **265** (1967) 1496
- Effets du recul alpha en conversion interne
Journal de Physique **29** C1 (1968) 103
- Mise en évidence d'excitations multiples des couches électroniques profondes dans le spectre de conversion interne de la transition nucléaire isomérique de ¹⁰⁹Ag
(with Ch. Briançon and R. J. Walen)
Physics Letters **34B** (1971) 599
- Bandes satellites des raies d'électrons de conversion interne
(with R. J. Walen and Ch. Briançon)
Journal de Physique **32** C4 (1971) 145

- Internal conversion electrons: Energy shift and nuclear half-life in ionized atoms — multiple deep vacancy production through second order effects
(with R. J. Walen and Ch. Briançon)
International Conference on Inner Shell Ionization Phenomena, Atlanta, Georgia (1972) 1906.

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- Absorção da radiação beta na passagem através lâminas metálicas (contribuição para beta-terapia superficial)
Arquivo de Patologia 2 (1930) 238
- Colheita e preparação do radão (instalação e técnica)
Arquivo de Patologia 2 (1930) 247
- Propriedades físicas dos óleos fixos
(with H. A. Ferreira, V. Paraíso, F. Mendes)
Publ. do Lab. Física da Univ. de Lisboa 1 (1932) 63
- Mecanismo de emissão da radiação gama
Revista de Química Pura e Aplicada 9 (1934) 3
- Madame Curie
Técnica, no. 64 (1935) 51; and Gazeta de Física 1 (1948) 272
- Transmutation des éléments par des particules accélérées artificiellement
Ed. Hermann et Cie, Paris (1935)
- A Salomé de L. Cranach, o Velho
(with J. Couto)
Boletim da Acad. Nac. de Belas-Artes 4 (1938) 39
- Laboratório para o exame de obras de arte
Boletim dos Museus Nacionais de Arte Antiga 1 (1939) 32
- Estudo comparativo, ao Raio X, da obra dos Cranach
(with O. Trigo de Sousa)
Boletim dos Museus Nacionais de Arte Antiga 3 (1943) 187
- A obra científica de Jean Perrin
Publ. Instituto Francês em Portugal (1944)

Exame, ao raio X, do quadro "Cristo descido da Cruz" (autor desconhecido)

Boletim dos Museus Nacionais de Arte Antiga 9/10 (1944) 39

Observação com raios X de diamantes inclusos em massas de cera (with F. Mendes)

Boletim no. 14 do Museu Min. e Geol. da Univ. de Lisboa (1946) 179

Elementos de Física Atómica

Sá da Costa Ed., Lisboa (1947)

Recordações de Paul Langevin

Gazeta de Física 1 (1947) 103

O Laboratório de Física da Fac. Ciênc. de Lisboa sob a direcção do Prof. Dr. A. Cyrillo Soares (1930-47) e a investigação científica

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Transmutação por captura electrónica

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A importância da energia nuclear para o nosso país

Seara Nova 1331-6 (1957) 77

A obra científica de Frederic Joliot

Gazeta de Física 3 (1959) 188

A reforma das Faculdades de Ciências

República, 15 Junho 1959, 24 Julho 1959, 25 Agosto 1959

Salomon Rosenblum

Nuclear Physics 15 (1960) 189; and Journal des Recherches du CNRS (1960)

The Editor would like to thank Prof. Lídia Salgueiro — who worked closely with Dr. Valadares during his Lisbon years — for her contribution to the brief "obituary note".

Thanks are due also to other colleagues and specially to Prof. F. Bragança Gil for decisive help in gathering information contained in the "list of publications".

