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THE AGENCY'S AGREEMENT WITH THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION CONCERNING THE JOINT OPERATION OF THE INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS AT TRIESTE

Extension of the agreement

By an exchange of letters between the Directors General of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Agency, the duration of the agreement between the two organizations concerning the joint operation of the International Centre for Theoretical Physics at Trieste has been extended until 31 December 1986.

As UNESCO and the Agency have now been operating the Centre jointly for more than a decade, it is considered timely to present information relating to the Centre's activities during the period of joint operation. This information is presented in the Appendix.

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OPERATION OF THE INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS 1970-1981

1. The International Centre for Theoretical Physics was established in 1964, under the aegis of the Agency.

2. Arrangements with UNESCO for the joint operation of the Centre began in 1970. The Centre has undergone substantial development since then, as illustrated below.

3. The number of scientists visiting the Centre, particularly from developing countries, has increased appreciably over the period (see Table 1).

4. The increase in the number of visitors has been accompanied by an increase in the number of man-months spent at the Centre. Figures for total man-months spent at the Centre by scientists from developing and industrialized countries are given in Table 2.

5. As can be seen from Table 3, the average length of stay has been relatively stable in recent years for both categories of visitor - about five weeks for scientists from developing countries and a little less than two weeks for those from industrialized countries.

6. The number of countries sending visitors increased until 1977 and has been relatively stable since then. About three quarters of the countries in question are developing countries (see Table 4).

7. The number of preprints and reports issued each year provides some insight into the total level of research activities of scientists visiting the Centre. The figures are given in Table 5.

8. The participation of scientists from developing countries in the Centre's activities, which are multidisciplinary in character, has increased considerably, while that of scientists from industrialized countries has remained appreciable, helping to ensure continuing and effective interaction between the two groups.

9. Where feasible, and when the quality and content warrant it, the Centre provides limited support for selected courses in or meetings on physics held in developing countries; in this connection it may be mentioned that major training activities have recently been organized by the Centre in Africa and Asia. An important aspect of the organizational arrangements made for training courses has been the use of scientists from developing countries as co-directors or, in a number of instances, as lecturers.

Table 1[1]

Number of visitors	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
From developing countries	186	300	328	379	329	399	387	644	655	619	799	960	871
From industrialized countries	310	486	387	567	531	529	575	687	672	851	662	973	1111
TOTAL	496	786	715	946	860	928	962	1331	1327	1470	1461	1933	1982
% Developing/Total	37.5	38.2	45.9	40.1	38.3	43.0	40.2	48.4	49.4	42.1	54.7	49.7	43.9

Table 2[1]

Number of man-months	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
For developing countries	452.43	491.57	702.87	786.57	594.87	663.88	563.33	776.69	790.68	608.37	990.82	1141.26	1096
For industrialized countries	356.31	400.16	473.64	424.76	254.14	354.20	256.55	303.62	288.56	352.33	304.78	381.72	377
TOTAL	808.74	891.73	1176.51	1211.33	849.01	1018.08	819.88	1080.31	1079.24	960.70	1295.60	1522.98	1473
% Developing/Total	55.9	55.1	59.7	64.9	70.1	65.2	68.7	71.9	73.3	63.3	76.5	74.9	74.4

[1] The figures for 1982 are estimates.

Table 3[1]

Average duration (months) of stay for visitors	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
From developing countries	2.43	1.64	2.14	2.07	1.81	1.67	1.45	1.21	1.21	1.98	1.24	1.19	1.26
From industrialized countries	1.15	0.82	1.22	0.75	0.48	0.67	0.45	0.55	0.43	0.41	0.46	0.40	0.34

Table 4[1]

Number of countries sending visitors	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Developing	41	48	55	53	51	62	54	71	70	68	72	70	67
Industrialized	18	19	18	19	16	20	17	21	21	22	21	20	20
TOTAL	59	67	73	72	67	82	71	92	91	90	93	90	87
% Developing/Total	69.5	71.6	75.3	73.6	76.1	75.6	76.1	77.2	76.9	75.6	77.4	77.8	77.0

Table 5[1]

Number of preprints and reports issued

Year	Total	Number produced by scientists from developing countries (alone or in collaboration)
1970	154	81
1971	160	125
1972	161	108
1973	194	142
1974	141	104
1975	172	141
1976	127	102
1977	158	108
1978	160	116
1979	167	108
1980	183	148
1981	239	159
1982	234	164

10. The Centre has had some success in attracting outside funds; in 1982, for example, funds from eight countries and two international organizations were received over and above the basic funds provided by the Italian Government, UNESCO and the Agency. A high proportion of the total funds available is used for the direct support of developing-country scientists participating in the activities of the Centre. Some 200 scientists have become "Associates" of the Centre and about 100 "Federation Agreements" have been concluded with physics institutes in developing countries; the arrangements in question include provision for periodic visits to the Centre, either wholly or partly at the Centre's expense.[2]

11. A number of scientists active in high-energy and solid state physics are in residence for periods of several months at a time, and there is continuing contact between scientists at the Centre and the faculties of the Institute of Theoretical Physics of the University of Trieste and the Scuola Internazionale Superiore di Studi Avanzati (SISSA), which is also in Trieste.

12. The facilities available, while modest, have improved substantially. The Centre continues to make use of the original building provided by the Italian Government in 1968 and is now arranging to make use of a second building, similar in size, which has also been made available by the Government and which will provide both office and dormitory space. The computer facilities are being substantially upgraded and an installation shared with SISSA will shortly become operational.

13. The Centre's library collection currently numbers more than 20 000 volumes; some 350 scientific journals are subscribed to and about 500 preprints and reports are received each month from other scientific institutions. The mailing list now encompasses more than a thousand institutions, to which information on the Centre's activities is provided on a continuing basis. The Centre's active files refer to about 1000 practising physicists throughout the world.

14. Information on participation in major courses organized by the Centre since 1970 is appended as Annex I and a list of countries whose scientists participated in Centre activities during the period 1970-82 is appended as Annex II.

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[2] Associates are permitted to visit the Centre three times in the course of six years, for periods of six weeks (minimum) to three months (maximum) each time, at the expense of the Centre. Federation Agreements provide for visits, on a cost-sharing basis, up to a stated total number of man-days each year.

A N N E X I

PARTICIPATION IN MAJOR COURSES*/

Subject	Dates	Number of lecturers	Number of participants
Theory of imperfect crystalline solids	Jan.-Apr. 1970	23	105
Structure of nuclei	Jan.-Mar. 1971	30	116
Computing as a language of physics	August 1971	29	239
Electrons in crystalline solids	Jan.-Apr. 1972	23	116
Global analysis and its applications	Jul.-Aug. 1972	70	218
Atoms, molecules and lasers	Jan.-Apr. 1973	28	72
Mathematical and numerical methods in fluid dynamics	Sep.-Dec. 1973	42	108
Heavy ion high-spin states and nuclear structure	Sep.-Dec. 1973	26	102
Surface science	Jan.-Apr. 1974	26	109
Control theory and topics in functional analysis	Sep.-Nov. 1974	32	63
Complex analysis and its applications	May-Aug. 1975	32	92
Physics of the oceans and atmosphere	Sep.-Dec. 1975	33	90
Interactions of radiation with condensed matter	Jan.-Mar. 1976	30	97
Teaching of physics at the tertiary level	Jul.-Aug. 1976	20	28
Applications of analysis to mechanics	Sep.-Dec. 1976	41	89
Atomic and molecular physics	Jan.-Mar. 1977	23	77
Theoretical and computational plasma physics	Mar.-Apr. 1977	24	130
Science teaching (in French)	Jul.-Aug. 1977	34	50

*/ The proceedings of many of these courses have been published and are available from the Agency or, in some cases, from outside publishers.

Subject	Dates	Number of lecturers	Number of participants
Solar energy conversion	September 1977	26	179
Physics of the Earth	Sep.-Dec. 1977	18	86
Boundary value problems for ordinary differential equations and applications	Nov.-Dec. 1977	18	70
Nuclear physics and reactors	Jan.-Mar. 1978	42	180
Physics of modern materials	Mar.-Jun. 1978	37	91
Solar energy I (in French)	September 1978	13	54
Mathematical economics	Sep.-Oct. 1978	6	76
Systems analysis: theory, methods and applications	Oct.-Nov. 1978	34	80
Atomic and molecular physics and quantum optics	Jan.-Mar. 1979	39	63
Non-conventional energy I	Aug.-Sep. 1979	42	140
Plasma physics	Oct.-Nov. 1979	45	78
Theoretical physics	Jul.-Aug. 1979	19	117
Recent advances in the theory of evolution equations	November 1979	18	44
Nuclear theory applications	Jan.-Feb. 1980	13	78
Operational physics of power reactors	March 1980	15	56
Physics of polymers, liquid crystals and low-dimensional solids	Apr.-Jun. 1980	31	107
Complex analysis	July 1980	15	180
Solar energy II (in French)	September 1980	21	57
Physics of flow in oceans, the atmosphere and deserts	Sep.-Nov. 1980	34	106
Lasers in atomic and molecular physics	Feb.-Apr. 1981	38	109
Fusion energy	May-Jun. 1981	44	120
Non-conventional energy II	Jul.-Aug. 1981	29	135
Microprocessors: technology and applications in physics	Sep.-Oct. 1981	25	139
Variational methods in analysis and mathematical physics	Oct.-Dec. 1981	25	80

A N N E X II

COUNTRIES WHOSE SCIENTISTS PARTICIPATED IN ACTIVITIES OF THE CENTRE DURING THE PERIOD 1970-82

1. Afghanistan
2. Algeria
3. Argentina
4. Australia
5. Austria
6. Bahrain
7. Bangladesh
8. Barbados
9. Belgium
10. Benin
11. Bolivia
12. Brazil
13. Bulgaria
14. Burma
15. Burundi
16. Cameroon
17. Canada
18. Cape Verde
19. Central African Rep.
20. Chile
21. China
22. Colombia
23. Congo
24. Costa Rica
25. Cuba
26. Cyprus
27. Czechoslovakia
28. Denmark
29. Dominican Republic
30. Ecuador
31. Egypt
32. El Salvador
33. Ethiopia
34. Finland
35. France
36. Gabon
37. German Dem. Rep.
38. Germany, Fed. Rep. of
39. Ghana
40. Greece
41. Guatemala
42. Guinea
43. Guyana
44. Honduras
45. Hong Kong
46. Hungary
47. Iceland
48. India
49. Indonesia
50. Iran Islamic Rep.
51. Iraq
52. Ireland
53. Israel
54. Italy
55. Jamaica
56. Japan
57. Jordan
58. Kenya
59. Korea, Rep. of
60. Kuwait
61. Lebanon
62. Lesotho
63. Liberia
64. Libyan Arab J.
65. Madagascar
66. Malawi
67. Malaysia
68. Mali
69. Malta
70. Mauritania
71. Mauritius
72. Mexico
73. Morocco
74. Mozambique
75. Nepal
76. Netherlands
77. New Zealand
78. Nicaragua
79. Niger
80. Nigeria
81. Norway
82. Pakistan
83. Panama
84. Papua New Guinea
85. Paraguay
86. Peru
87. Philippines
88. Poland
89. Portugal
90. Qatar
91. Romania
92. Rwanda
93. Saudi Arabia
94. Senegal
95. Sierra Leone
96. Singapore
97. Somalia
98. Spain
99. Sri Lanka
100. Sudan
101. Swaziland
102. Sweden
103. Switzerland
104. Syria
105. Tanzania
106. Thailand
107. Togo
108. Trinidad
109. Tunisia
110. Turkey
111. Uganda
112. United Arab Emirates
113. USSR
114. UK
115. USA
116. Upper Volta
117. Uruguay
118. Venezuela
119. Viet Nam
120. Yemen Arab Rep.
121. Yemen, People's Dem. Rep.
122. Yugoslavia
123. Zaire
124. Zambia