



EUROPEAN COMMISSION
RESEARCH DG HUMAN RESOURCES
AND MOBILITY

RTN Periodic Activity Report

Project No: 503369

Project Acronym: QUEST FOR UNIFICATION

Project Full Name: THE QUEST FOR UNIFICATION : THEORY
CONFRONTS EXPERIMENT

Marie Curie Actions

RTN Periodic Activity Report

Period covered: from 01/10/2007 to 30/09/2008

Date of preparation: 04/12/2008

Period number: 4th

Start date of project: 01/10/2004

Date of submission (SESAM):
04/12/2008 08:51:31 CET

Project coordinator name:

Duration: 48

Project coordinator organisation name:
ECOLE POLYTECHNIQUE

Version: 1

Marie Curie Actions
RTN Periodic Activity Report

GENERAL INFORMATION

Project No:	503369
Project acronym:	QUEST FOR UNIFICATION
Project full name:	THE QUEST FOR UNIFICATION : THEORY CONFRONTS EXPERIMENT
Period number:	4th
Period covered - start date:	01/10/2007
Period covered - end date:	30/09/2008
Project start date:	01/10/2004
Project duration [months]:	48
Project coordinator name:	
Project coordinator organisation name:	ECOLE POLYTECHNIQUE
Date of submission:	05/11/2008

SUMMARY OF THE RECRUITMENT DURING THE REPORTING PERIOD

Contractor: ECOLE POLYTECHNIQUE

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Nitti	ER (4-10 years)	IT-Italy	No	Male	01/09/2005	31/08/2006	Full Time	0.0
Pablo Camara	ER (4-10 years)	ES-Spain	No	Male	01/09/2006	31/08/2008	Full Time	11.0
Arumansu Sil	ER (4-10 years)	IN-India	No	Male	01/10/2006	31/05/2007	Full Time	0.0
Panteleimon Tziveloglou	ESR (<4 years)	EL-Greece	Yes	Male	01/06/2008	30/09/2008	Full Time	4.0

Contractor: COMMISSARIAT A L'ENERGIE ATOMIQUE

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Arumansu Sil	ER (4-10 years)	IN-India	No	Male	01/06/2007	30/09/2008	Full Time	12.0

Contractor: RHEINISCHE FRIEDRICH-WILHELMS-UNIVERSITAET BONN

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Andrei Micu	ER (4-10 years)	RO-Romania	Yes	Male	01/10/2005	30/09/2008	Full Time	12.0

Contractor: ARISTOTLE UNIVERSITY OF THESSALONIKI

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Iain Nicholas Richard Peddie	ER (4-10 years)	UK-United Kingdom	No	Male	06/09/2005	05/09/2007	Full Time	0.0

Contractor: ISTITUTO NAZIONALE DI FISICA NUCLEARE

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Vyacheslav Rychkov	ER (4-10 years)	RU-Russian Federation	No	Male	01/09/2005	31/08/2007	Full Time	0.0
Olga Mena Requejo	ER (4-10 years)	ES-Spain	No	Female	15/09/2006	14/03/2008	Full Time	5.5
Claudia Hagedorn	ER (4-10 years)	DE-Germany	No	Female	01/02/2008	30/04/2008	Full Time	3.0

Contractor: SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Nicolas Moeller	ER (4-10 years)	DE-Germany	No	Male	01/10/2005	30/09/2007	Full Time	0.0

Contractor: ISTITUTO SUPERIOR TECNICO

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Maria Amparo Tortola	ER (4-10 years)	ES-Spain	Yes	Female	01/02/2006	31/08/2008	Full Time	11.0

Contractor: UNIVERSIDAD AUTONOMA DE MADRID

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Stefan Antusch	ER (4-10 years)	DE-Germany	No	Male	01/09/2005	30/04/2007	Full Time	0.0
Filipe Joaquim	ER (4-10 years)	PT-Portugal	No	Male	01/09/2007	30/09/2008	Full Time	12.0
Achilleas Vamvasakis	ESR (<4 years)	EL-Greece	Yes	Male	01/04/2008	30/06/2008	Full Time	3.0

Contractor: UNIVERSITAT DE VALENCIA

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Satoru Utsunomiya	ER (4-10 years)	JP-Japan	No	Male	15/10/2006	30/09/2008	Full Time	12.0

Contractor: THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Gianmassimo Tasinato	ER (4-10 years)	IT-Italy	No	Male	01/09/2005	31/08/2007	Full Time	0.0
Andreas Athenodorou	ESR (<4 years)	CY-Cyprus	No	Male	01/10/2005	30/09/2008	Full Time	12.0

Contractor: UNIWERSYTET WARSZAWSKI

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Kin-ya Oda	ER (4-10 years)	JP-Japan	No	Male	01/10/2005	31/03/2006	Full Time	0.0
Oliver Eyton-Williams	ER (4-10 years)	UK-United Kingdom	No	Male	16/05/2006	15/11/2006	Full Time	0.0

Contractor: EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Name of the Researcher (as stated at time of selection)	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months covered by this recruitment during this reporting period
		Country	LFR					
Cedric Delaunay	ESR (<4 years)	FR-France	No	Male	01/04/2007	30/06/2007	Full Time	0.0
Panteleimon Tziveloglou	ESR (<4 years)	EL-Greece	Yes	Male	01/01/2008	31/05/2008	Full Time	5.0

TOTAL PMM PER CONTRACTOR**Contractor: ECOLE POLYTECHNIQUE****No. of full-time equivalent months to be delivered according to the contract: 12**

No. of full-time equivalent months covered by this recruitment during this reporting period
15.0

Contractor: COMMISSARIAT A L'ENERGIE ATOMIQUE

No. of full-time equivalent months to be delivered according to the contract: 12

No. of full-time equivalent months covered by this recruitment during this reporting period

12.0

Contractor: RHEINISCHE FRIEDRICH-WILHELMS-UNIVERSITAET BONN

No. of full-time equivalent months to be delivered according to the contract: 12

No. of full-time equivalent months covered by this recruitment during this reporting period

12.0

Contractor: ARISTOTLE UNIVERSITY OF THESSALONIKI

No. of full-time equivalent months to be delivered according to the contract: 0

No. of full-time equivalent months covered by this recruitment during this reporting period

0.0

Contractor: ISTITUTO NAZIONALE DI FISICA NUCLEARE

No. of full-time equivalent months to be delivered according to the contract: 24

No. of full-time equivalent months covered by this recruitment during this reporting period

8.5

Contractor: SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

No. of full-time equivalent months to be delivered according to the contract: 12

No. of full-time equivalent months covered by this recruitment during this reporting period

0.0

Contractor: ISTITUTO SUPERIOR TECNICO

No. of full-time equivalent months to be delivered according to the contract: 12

No. of full-time equivalent months covered by this recruitment during this reporting period

11.0

Contractor: UNIVERSIDAD AUTONOMA DE MADRID

No. of full-time equivalent months to be delivered according to the contract: 12

No. of full-time equivalent months covered by this recruitment during this reporting period

15.0

Contractor: UNIVERSITAT DE VALENCIA

No. of full-time equivalent months to be delivered according to the contract: 12

No. of full-time equivalent months covered by this recruitment during this reporting period

12.0

Contractor: THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD

No. of full-time equivalent months to be delivered according to the contract: 24

No. of full-time equivalent months covered by this recruitment during this reporting period

12.0

Contractor: UNIWERSYTET WARSZAWSKI

No. of full-time equivalent months to be delivered according to the contract: 0

No. of full-time equivalent months covered by this recruitment during this reporting period

0.0

Contractor: EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

No. of full-time equivalent months to be delivered according to the contract: 0

No. of full-time equivalent months covered by this recruitment during this reporting period

5.0

TOTAL PMM FOR ALL CONTRACTORS

No. of full-time equivalent months to be delivered according to the contract	No. of full-time equivalent months covered by this recruitment during this reporting period
132.0	102.5

SUMMARY OF THE EMPLOYMENT FORECAST FOR THE NEXT REPORTING PERIOD

Contractor: ECOLE POLYTECHNIQUE

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					
Pablo Camara	ER (4-10 years)	ES-Spain	No	Male	01/09/2006	31/08/2008	Full Time	0.0
Panteleimon Tziveloglou	ESR (<4 years)	EL-Greece	Yes	Male	01/06/2008	30/09/2008	Full Time	0.0

Contractor: COMMISSARIAT A L'ENERGIE ATOMIQUE

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					
Arunansu Sil	ER (4-10 years)	IN-India	No	Male	01/06/2007	30/09/2008	Full Time	0.0

Contractor: RHEINISCHE FRIEDRICH-WILHELMS-UNIVERSITAET BONN

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					
Andrei Micu	ER (4-10 years)	RO-Romania	Yes	Male	01/10/2005	30/09/2008	Full Time	0.0

Contractor: ARISTOTLE UNIVERSITY OF THESSALONIKI

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					

Contractor: ISTITUTO NAZIONALE DI FISICA NUCLEARE

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					
Olga Mena Requejo	ER (4-10 years)	ES-Spain	No	Female	15/09/2006	14/03/2008	Full Time	0.0
Claudia Hagedorn	ER (4-10 years)	DE-Germany	No	Female	01/02/2008	30/04/2008	Full Time	0.0

Contractor: SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					

Contractor: ISTITUTO SUPERIOR TECNICO

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					
Maria Amparo Tortola	ER (4-10 years)	ES-Spain	Yes	Female	01/02/2006	31/07/2008	Full Time	0.0

Contractor: UNIVERSIDAD AUTONOMA DE MADRID

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					
Filipe Joaquim	ER (4-10 years)	PT-Portugal	No	Male	01/09/2007	30/09/2008	Full Time	0.0
Achilleas Vamvasakis	ESR (<4 years)	EL-Greece	Yes	Male	01/04/2008	30/06/2008	Full Time	0.0

Contractor: UNIVERSITAT DE VALENCIA

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					
Satoru Utsunomiya	ER (4-10 years)	JP-Japan	No	Male	15/10/2006	30/09/2008	Full Time	0.0

Contractor: THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					
Andreas Athenodorou	ESR (<4 years)	CY-Cyprus	No	Male	01/10/2005	30/09/2008	Full Time	0.0

Contractor: UNIWERSYTET WARSZAWSKI

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					

Contractor: EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Name of the Researcher	Type	Origin		Gender	Start date of recruitment	End date of recruitment	Working time commitment	No. of full-time equivalent months in the next reporting period
		Country	LFR					
Panteleimon Tziveloglou	ESR (<4 years)	EL-Greece	Yes	Male	01/01/2008	31/05/2008	Full Time	0.0

TOTAL PMM PER CONTRACTOR**Contractor: ECOLE POLYTECHNIQUE****No. of full-time equivalent months to be delivered according to the contract: 12**

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

Contractor: COMMISSARIAT A L'ENERGIE ATOMIQUE**No. of full-time equivalent months to be delivered according to the contract: 0**

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

Contractor: RHEINISCHE FRIEDRICH-WILHELMS-UNIVERSITAET BONN**No. of full-time equivalent months to be delivered according to the contract: 12**

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

Contractor: ARISTOTLE UNIVERSITY OF THESSALONIKI

No. of full-time equivalent months to be delivered according to the contract: 0

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

Contractor: ISTITUTO NAZIONALE DI FISICA NUCLEARE

No. of full-time equivalent months to be delivered according to the contract: 12

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

Contractor: SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI

No. of full-time equivalent months to be delivered according to the contract: 0

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

Contractor: ISTITUTO SUPERIOR TECNICO

No. of full-time equivalent months to be delivered according to the contract: 0

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

Contractor: UNIVERSIDAD AUTONOMA DE MADRID

No. of full-time equivalent months to be delivered according to the contract: 12

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

Contractor: UNIVERSITAT DE VALENCIA

No. of full-time equivalent months to be delivered according to the contract: 0

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

Contractor: THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD

No. of full-time equivalent months to be delivered according to the contract: 12

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

Contractor: UNIWERSYTET WARSZAWSKI

No. of full-time equivalent months to be delivered according to the contract: 0

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

Contractor: EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

No. of full-time equivalent months to be delivered according to the contract: 0

No. of full-time equivalent months covered by this recruitment during this reporting period
0.0

TOTAL PMM FOR ALL CONTRACTORS

No. of full-time equivalent months to be delivered according to the contract	No. of full-time equivalent months covered by this recruitment during this reporting period
60.0	0.0

PROJECT ACHIEVEMENTS DURING THE REPORTING PERIOD

Research Achievements

General progress and comparison with the Work Programme:

Progress has been made in essentially all the main directions of our work plan. The scientific highlights in the six research topics of the network are described in a separate document. As can be seen from the publication list, the network during the third year of the contract produced 142 joint publications (involved at least two different nodes) that have received already about 1500 citations.

There was no essential difference in the distribution of tasks planned in the Work Programme. From the description of the scientific highlights, it appears that there was somewhat less activity than expected on particle astrophysics and cosmology (task c) and on extra dimensions (task e), while there was more research effort on supersymmetric phenomenology (task b) and string phenomenology (task d). The main topics of activity where breakthroughs were obtained are (i) supersymmetry phenomenology, (ii) new approaches to the hierarchy problem, (iii) dark matter candidates, (iv) gauge mediation of supersymmetry breaking and metastable vacua, (v) moduli stabilization and string model building.

It follows that in particular Milestone 4 (supersymmetry tests), Milestone 8 (lepto/baryogenesis) and Milestone 13 (gravitational phenomena in brane constructions), that were leftover from previous years, were achieved and, thus, all scientific objectives of the Work Programme have been completed. Moreover, further new results were obtained to several other milestones that were already achieved previous years, such as in Milestones 2 (models of flavour), 6 (supersymmetry breaking mechanisms) and 7 (inflationary models).

The participation of network members in international conferences and workshops is given in a separate document. The visits and secondments are listed below:

From Palaiseau

to Greece: I. Antoniadis (06/08)

to Hamburg/Bonn: I. Antoniadis (12/07, 06/08)

to Barcelona/Madrid: I. Antoniadis (05/08), E. Dudas (05/08)

to Oxford: E. Dudas (03/08)

to Warsaw: E. Dudas (04/08)

to CERN: P. Camara (08/08), H. Partouche (07/08), E. Kiritsis (07/08), E. Dudas (01/08, 08/08), F. Nitti (10/07)

From Saclay

to Trieste: C. Savoy (09/08)

to Barcelona/Madrid: C. Savoy (05/08), A. Sil (05/08)

to CERN: C. Savoy (08/08)

From Bonn

to Barcelona/Madrid: H.-P. Nilles (05/08)

to CERN: H.-P. Nilles (08/08), A. Micu ((07-08/08)

From Greece

to Lisbon: G. Zoupanos (03/08)

to Barcelona/Madrid: K. Tamvakis (05/08), A. Dedes (11/07)

to Oxford: K. Tamvakis (09/08)

to CERN: A. Lahanas (07/08), Vlachos (09/08), G. Gounaris (05/08), J. Rizos (08/08), J. Vergados (09/08), G. Zoupanos (08/08)

From INFN

to Palaiseau: F. Zwirner (02/08, 08/08)

to Barcelona/Madrid: F. Zwirner (05/08), S. Rigolin (07/08), O. Mena (10/07, 12/07, 01/08), P. Anastasopoulos (11/07)

to Valencia: O. Mena (04/08, 07/08)
to Oxford: O. Mena (11/07)
to CERN: F. Zwirner (08/08), G. Dall'Agata (09/08), L. Silvestrini (05/08), P. di Bari (09/08), F. Piccinini (03/08)

From Trieste
to Barcelona/Madrid: P. Ullio (05/08)
to CERN: D. Amati (05/08), M. Serone (04/08)

From Lisbon
to Greece: M. Tortola (05/08)
to Trieste: G.C. Branco (07/08)
to Barcelona/Madrid: J.C. Romao (05/08), M. Tortola (12/07)
to Valencia: J.C. Romao (04/08), M. Rebelo (03/08), J. Silva-Marcos (04/08), M. Tortola (02/08, 04/08, 06/08)
to CERN: M. Rebelo (10/07-03/08, 05/08, 08/08), J. Silva-Marcos (01/08, 02/08), G.C. Branco (10-12/07, 05/08)

From Madrid
to Saclay: G. Tasinato (06/08)
to CERN: L.E. Ibanez (08/08), L. Aparicio (08/08), M. Quiros (06-09/08)

From Valencia
to Greece: Satoru Kaneko (05/08), S. Morisi (05/08)
to INFN: S. Morisi (03/08)
to Lisbon: M. Hirsch (02/08, 09/08), J. Valle (10/07), Satoru Kaneko (Utsunomiya) (09/08), S. Morisi (02/08)
to Barcelona/Madrid: F. Bazzocchi (05/08), M.J. Vicente (05/08)

From Oxford
to Saclay: P. Fox (06/08)
to Barcelona/Madrid: A. Athenodorou (05/08), G. Ross (05/08)
to CERN: G. Ross (07/08), J. March-Russell (07/08)

From Warsaw
to Bonn: M. Olechowski (02/08)
to CERN: S. Pokorski (04/08)

From CERN
to Palaiseau: P. Tziveloglou (10/07, 02/08)
to Greece: I. Antoniadis (04/08, 05/08)
to INFN: A. Boyarskyi (08/07), G. Servant (08/07), C. Grojean (09/07)
to Barcelona/Madrid: A. Falkowski (05/08), C. Grojean (05/08), O. Lebedev ((02/08, 05/08), F. Marchesano (05/08), G. Servant (05/08), S. Sibiryakov (05/08), G. Gersdorff (05/08), A. Riotto (05/08), S. Jaeger (05/08), R. Contino (05/08), G. Gvali (05/08), J. Wells (05/08), M. Gomez-Reino (05/08)
to Oxford: . Grojean (02/08), I. Antoniadis (03/08), A. Riotto (09/08)

From US team
to Barcelona/Madrid: L. Hall (05/08)
to Oxford: S. Dimopoulos (06/08)
to CERN: S. Dimopoulos (08/08)

Scientific awards: two ERC grants were awarded to network members in the CERN node; a starting grant to G. Servant and an advanced grant to the network coordinator.

Outreach activity:

Saclay: The successful prediction by two network members of the recent results of the PAMELA

experiment attracted quite some interest in the international popular and scientific press. About 6 articles (including interviews to the authors and other commentaries) were published on different aspects on magazines or journals: ScienceNews (USA), Cosmos Magazine (Australia), Scientific American (USA), Nature (UK), The Australian (Australia), The Times Online (UK), while several discussions on online forums have been organized.

Greek node: i) In March 2008, N. Tracas organized (in collaboration with physicists from the Greek Universities) the 4th "Master Classes" in Particle Physics. 460 high school students (16-18 years old) were gathered at the University of Athens (60 students), National Technical University of Athens (120), N.R.C. Demokritos (40), Aristotle University of Thessaloniki (200) and University of Crete (60), where they followed whole-day seminars on Particle Physics (theory, accelerators and detectors). At the end of the day, the students estimated the branching ratio of Z_0 , as well as the strength of the strong coupling constant, through 1000 DELPHI/LEP events working with the "Hands on CERN/WIRED" computer programme (translated in Greek).

ii) Through the year members of the Greek Outreach Group (chaired by N. Tracas) have visited several high schools around the country giving lectures to the students as well as to the open public. During the XXVI Workshop on Recent Developments in High Energy Physics and Cosmology organized by the Hellenic Society for the Study of High Energy Physics (Ancient Olympia, Greece, April 2008), N. Tracas along with other Greek scientists delivered a number of seminars to local high schools students as well

as teachers. In December 2007, during the celebration of 170 years of the National Technical University of Athens, He also organized a local Master Classes event with participation of 50 students and participated in a "cafe scientifique" of about 50 persons, presenting the main objectives of LHC.

iii) In the frame of national journalist days, N. Tracas has organized (in collaboration with CERN Press Office) a Greek journalist day in November 2007. Five journalists from four important daily newspapers and one from a public TV channel visited CERN and were guided by Greek scientists working on the site. These visits initiated a number of articles in the corresponding newspapers and an one-hour special TV programme with the participation of Greek scientists.

iv) The first-beam day of LHC (10th September 2008) has provoked numerous articles in the newspapers and special reports/interviews in radio stations and TV channels. Members of our team have written articles and participated in radio interviews as well as in a 2-hour TV programme. Moreover, the Greek Outreach Group has continued to update its web site with news from LHC.

CERN: Scientific animations were organized towards the general public ("lundi decouvertes") and towards high school teachers. Two network members have been involved in the organization of these events (C. Grojean and G. Servant).

Training and ToK

According to the Work Plan, most of the young researchers were employed during the second and the third years of the contract. In fact, nine of them started their employment early Fall 05: Francesco Nitti (ER in Ecole Polytechnique/Palaiseau from September 05), Iain Peddie (ER in Thessaloniki/Greece from September 05), Vyacheslav Rychkov (ER in Pisa/INFN from September 05), Stefan Antusch (ER in Madrid from September 05), Gianmassimo Tasinato (ER in Oxford from September 05), Andrei Micu (ER in Bonn from October 05), Nicolas Moeller (ER in SISSA/Trieste from October 05), Kin-ya Oda (ER in Warsaw from October 05), Andreas Athenodorou (ESR in Oxford from October 05). Two started in the middle of the academic year 05-06: Maria Amparo Tortola (ER in Lisbon from February 06) and Oliver Eyton-Williams (ER in Warsaw from May 06), while four more started in Fall 06: Pablo Camara (ER in Ecole Polytechnique/Palaiseau from September 06), Arunansu Sil (ER Ecole Polytechnique/Palaiseau for 8 months from October 06 and the rest 16 months in Saclay from June 07), Olga Mena Requejo (ER in INFN/Rome from October 06), Satoru Kaneko (ER in Valencia from October 06). Two more were hired later in the 3rd year of the contract: Filipe Joaquim (ER in Madrid from September 07, originated from Lisbon), and Cedric Delaunay (ESR at CERN for 3 months from April 07, originated from Saclay), according to the 2nd annual and mid-term reports. Finally, three more were hired in the 4th year, as was described in the 3rd annual report: Claudia Hagedorn (ER at INFN/Padova for 3 months from February 08, originated from Heidelberg), Panteimon Tziveloglou (ESR from January 08 for 9 months, the first 5 at CERN and the last 4 at Ecole Polytechnique/Palaiseau, originated from Thessaloniki/Greece and PhD

student at the university of Cornell/USA), and Achilleas Vamvasakis (ESR at Madrid for 3 months from April 08, originated from Thessaloniki/Greece). Thus, the network hired in total 20 young researchers: 16 ER and 4 ESR.

Two of them left already during the 2nd year of the contract: F. Nitti who was paid one year and then was moved on different funds but remains a member of the coordinating node, and K. Oda stayed only six months in Warsaw and then moved back to Japan in a longer term position. Six more terminated their appointment during the 3rd year of the contract: I. Peddie (after two years - he is now in a computer company), V. Rychkov (after two years - he has now a 3-years Assistant Professor position in Scuola Normale of Pisa), N. Moeller (after two years - he has now a postdoctoral position in Munich), S. Antusch (after 20 months - he has now a 5-years junior faculty position in T.U. Munich), G. Tasinato (after two years - he has now a postdoctoral position in Madrid), and O. Eyton-Williams (after 6 months - he is still in Warsaw but paid on different funds). Finally, one more left during the fourth year: O. Mena (after 18 months - she has now a long-term position in Barcelona). The remaining terminated their contract around the end of the 4th year: P. Camara (after two years - he remains in Ecole Polytechnique with a Marie Curie fellowship), A. Sil (after two years in total - he remains at Saclay on national funds), A. Micu (after 3 years - he goes back to Bucharest of his country of origin on a faculty job), M. Tortola (after 31 months - she has now a postdoctoral position in Hamburg), F. Joaquim (after 13 months - he has now a fellowship position at CERN), S. Kaneko (after 23.5 months - he has now a postdoctoral position in Lisbon), A. Athenodorou (after 3 years - he stays one more year in Oxford to finish his PhD thesis). Moreover the three researchers who were hired for 3 months (two ESR and one ER) went back to their home institutes: C. Delaunay to Saclay, A. Vamvasakis to Thessaloniki/Greece and C. Hagedorn to Heidelberg, while P. Tziveloglou is continuing his PHD thesis at CERN with a Marie Curie fellowship.

Compared to the initial planing, apart from minor modifications in the expected timing of the appointment contracts that have been discussed in previous reports, with no particular impact on the Work Plan, there were the following modifications of the recruitment plan of the network:

- (i) A slight redistribution of months between the two french nodes that was described in the previous report: A. Sil started his appointment in October 06 in Ecole Polytechnique for 8 months on fixed stipend and then was moved to Saclay for the remaining 16 months on an employment contract.
 - (ii) Because of the delay of the starting date of S. Kaneko, as explained in the previous report, Valencia will provide 23.5 ER person months instead of 24 expected in the original plan.
 - (iii) Because of the early departure of S. Antusch by 4 months, that was mentioned above, the new ER F. Joaquim of Madrid node stayed 13 months (until the end of the contract), while an ESR have also been hired for 3 months: Achilleas Vamvasakis from the Greek node.
 - (iv) O. Mena (ER in INFN node) terminated her appointment 6 months earlier, because she was offered a tenure track position in Barcelona, Spain. The INFN node has then hired another ER for 3 months: Claudia Hagedorn from Heidelberg, Germany. This leads 3 months less person months for the INFN node compared to the initial plan (45 person months, instead of 48).
 - (v) The contract of ER of Lisbon Maria Tortola was extended by 7 months on fixed stipend, to 31 months (instead of 24 of the initial plan).
 - (vi) Apart from the above modifications, a leftover of funds was created from the marital status of the recruited researchers (single versus married as expected). It was then decided to extend the ER of Lisbon Maria Tortola by 7 months on fixed stipend, to 31 months (instead of 24 of the initial plan). Furthermore, a few more doctorate students were exchanged among different nodes as ESRs (see below).
 - (vii) C. Delaunay from Saclay was hired as ESR for 3 months at CERN which had no person months to deliver in the initial contract. Moreover Panteleimon Tziveloglou from Greece was hired for 9 months (5 months at CERN and 4 months at Ecole Polytechnique/Palaiseau).
- Thus, the network has provided 15 more person months ESR and 1/2 more ER, to a total of 363.5 (51 ESR + 312.5 ER), instead of 348 (36 ESR + 312 ER) of the initial plan, corresponding to an over-completion of 104%.

All vacancies were published in the Web (on the home page of the network, as well as of the local institutes, and in the Web site of CORDIS) and were announced to the main institutions active in our research field, world-wide. All available standards were used, as well as modern electronic means: Robot Jobmenu, High Energy Physics Information Center (HEPIC), Physics Jobs, TIPTOP and

CERN. In addition, the announcements were sent to many institutions in Europe and to special mailing lists of senior people who sent suggestions for candidates. A large number of applications was received, varying between 50 and 100 per node with vacancy. The selection procedure was made locally and was based mainly on scientific excellency on the main research topics of the network. The majority of the selected ESR/ER's (13/20) were previously in institutes related to (other) network nodes, either as students or as postdocs (P. Camara in Madrid, A. Micu in Hamburg/Sussex, I. Peddie in Southampton, O. Mena in Madrid, M. Tortola in Valencia, S. Antusch in Southampton, K. Oda in Bonn, G. Tasinato in SISSA/Bonn, O. Eyton-Williams in Southampton, F. Joaquim in Lisbon, C. Delaunay in Saclay, A. Vamvasakis and P. Tziveloglou in Thessaloniki). On the other hand, four young researchers employed by the network originated from a country "outside" EU: V. Rychkov for 2 years (included in the 1st report), K. Oda for 6 months (2nd report), A. Sil for 2 years and S. Kaneko for 23.5 months (both in the 3rd report), corresponding in total to 53.5 months (15%).

The young researchers have been very well integrated into the research programme of the network. They had beneficial interactions with the other postdocs and students, and they participated actively in the scientific activity of their host institutes. Furthermore, they have been encouraged to travel and get contacts with other network nodes and establish collaborations. They also attended and presented their work to major network meetings, as well as to international conferences and workshops related to the network research activity. They enlarged considerably their expertise and acquired complementary skills: presentation skills, computer skills, and knowledge of the language of the host country. Many of them were also in charge of research seminars organization and acquired organizational as well as teaching skills. All Career Development Plans were established on time and have been followed closely during the reporting year. Note that the big majority of ESR/ER who terminated their appointment remained in the network on different funds or on better positions (14/20): A. Nitti, V. Rychkov, G. Tasinato, O. Eyton-Williams, P. Camara, A. Sil, O. Mena, M. Tortola, F. Joaquim, S. Kaneko, A. Athenodorou, C. Delaunay, A. Vamvasakis and P. Tziveloglou, corresponding to a fraction of 70%.

Following the Work Programme of the contract, training of young researchers had two components:

(a) Individual training through:

- a1. Active participation in the joint research programme, that led in particular to 27 publications during the 4th year of the contract; all of them were in collaboration with senior and other members of the host institutes, while 11 were joint involving at least two different network nodes.
- a2. Frequent exchanges among participating nodes and extended stays outside their home institutes.
- a3. Special training measures of every host institute.

(b) Common training through:

- b1. Active participation in the network meetings.
- b2. Participation in European and other International Schools.

The ER and ESR activity is summarized below (the duration of visits is usually one week, unless otherwise indicated):

Pablo Camara (ER, Ecole Polytechnique/Palaiseau)

- Visits outside the network: Brussels (December 07)
- Conferences/Workshops: 'String phenomenology and dynamical vacuum selection' (Liverpool 27-29.03.08), 'String phenomenology 2008' (Philadelphia, USA 28.05-1.06.08), 'International conference on high energy physics' (Philadelphia, USA 29.07-5.08.08), 'String phenomenology CERN-TH institute' (CERN 7-16.08.08), 'Strings 08' (CERN 18-23.08.08)
- String seminar organizer in Ecole Polytechnique

Panteleimon Tziveloglou (ESR, CERN and Ecole Polytechnique/Palaiseau)

- Visits: Ecole Polytechnique/Palaiseau (October 07, February 07)
- Conferences/Workshops: 'Strings 08' (CERN 18-23.08.08)
- Schools: EPFL/Lausanne (November 08, December 08), 'Theory and Particle Physics: the LHC perspective and beyond' (Cargèse, Corsica 16-28.06.08), '46th International School of Subnuclear Physics' (Erice, Italy 29.08-7.09.08)

Arunansu Sil (ER, Saclay)

- Network meeting and 'Planck 2008': Barcelona, 19-23.05.08 (talk)

- Visits outside the network: IUCAA/Pune, India (August 08, talk), SINP/Kolkata, India (September 08, talk)
- Conferences/Workshops: `EURO-GDR SUSY meeting' (Brussels 12-14.11.07, talk), `4th International workshop on the Dark Side of the Universe' (Cairo, Egypt 1-5.06.08, talk), `34th International Conference on High Energy Physics' (Philadelphia, USA 29.07-5.08.08)
- Schools: `Prospects in Theoretical Physics, Strings and Cosmology' (Princeton, USA 14-25.07.08)

Andrei Micu (ER, Bonn)

- Visits: Hamburg (January 08)
- Visits outside the network: IFIN-HH Bucharest (March 08)
- Conferences/Workshops: `String phenomenology CERN-TH institute' (CERN 19.07-16.08.08, talk), `Strings 08' (CERN 18-23.08.08), `CERN-TH institute on Black Holes' (CERN 25.08-4.09.08)
- Theoretical physics seminar organizer in Bonn University

Olga Mena (ER, INFN/Roma La Sapienza)

- Visits: UAM/Madrid (October 07, December 07, January 08), IPPP/Durham (November 07, seminar)
- Visits outside the network: Karlsruhe (November 07, seminar), Fermilab, Illinois (February 08, seminar)
- Conferences/Workshops: `10th International Workshop on Neutrino Factories' (Valencia 30.06-5.07.08, plenary talk)
- Schools: `PAU training lectures', Madrid (10-14.12.07)
- CAMB academic lectures for PhD students (University of Valencia and IFIC/CSIC 28-29.04.08)
- Organizer of regular lunch seminars at Roma La Sapienza

Claudia Hagedorn (ER, INFN/Padova)

- Visits outside the network: MPI Heidelberg (March 08, April 08)
- Conferences/Workshops: `IV International Workshop on Neutrino Oscillations' (Venice 15-18.04.08)
- Talk at INFN Journal Club of Theoretical and Astroparticle Physics (Padova, 30.04.08)

Mariam Tortola (ER, Lisbon)

- Visits: Valencia (February 08, April 08, June 08)
- Conferences/Workshops: `XIII IFT-UAM/CSIC Christmas Workshop' (Madrid 17-19.12.07, talk), `Physics of Massive Neutrinos (PMN08)' (Milos, Greece 19-23.05.08, talk)

Filipe Joaquim (ER, Madrid)

- Conferences/Workshops: `RETENU 2007 on neutrinos' (Barcelona 18-19.10.07), `Flavour as a Window to New Physics at the LHC' (CERN 1-06.06.08), `SUSY08' (Seoul, Korea 16-21.06.08), `NOW 2008: Neutrino Oscillation Workshop' (Lecce, Italy 6-13.09.08)

Satoru Kaneko (Utsunomiya) (ER, Valencia)

- Visits: Lisbon (September 08)
- Visits outside the network: Japan (twice)
- Conferences/Workshops: `Physics of Massive Neutrinos (PMN08)' (Milos, Greece 19-23.05.08, talk)

Andreas Athenodorou (ESR, Oxford)

- Network meeting and `Planck 2008': Barcelona, 19-23.05.08 (talk)
- Conferences/Workshops: `UK Annual Theory Meeting' (Durham 17-19.12.07), `Lattice 2008' (Virginia, USA 14-19.07.08, talk)
- Schools: `GradCATS 2008' (King's College London 6.05.08, talk), `New Trends in Particle Physics and Cosmology' (Sheffield, UK 30.06-3.07.08)

Details of training of A. Athenodorou (ESR in Oxford):

The major research objectives envisaged under the research plan have been achieved. Besides his work in Oxford, Andreas has also developed a collaboration with physicists in the University of Cyprus and the University of Athens which has resulted in a research paper studying non-perturbative studies of properties of the QCD action with clover quarks. This is important to the

improvement of lattice calculations of non-perturbative physics. Overall Andreas' research skills have been considerably developed through collaborative work with more experienced researchers. His communication skills have also been developed through various presentations given at conferences and seminars.

Finally, training of other young researchers of the participating institutes, graduate students and postdocs not employed by the network, has been very intense by systematic lectures, seminars, topical workshops, network schools and meetings. This allowed in particular an active collaboration between them and more senior members of the nodes. CERN played a special role in these training activities, and for establishing close connection and communication among the network members.

Management

The recruitment strategy of the network was very effective and successful both for ER and ESR. As mentioned in the training report, the vacant positions were widely publicized and there was an open competition at international level. We received several hundreds of applications distributed equally between member (and associated) states of the EU and third countries from all over the world. The number of applications from women for ER was adequately large. Although decisions were based mainly on scientific criteria, gender issues and promotion of the exchange between nodes were taken into account. Three female scientists were hired as ERs during the 4 years of the contract: M. Tortola in Lisbon for 31 months, O. Mena in INFN/Rome for 18 months, and C. Hagedorn in INFN/Padova for 3 months. This gives in total 52 months, corresponding to a percentage of 14%.

The overall efficiency of the external communication was excellent, as well as in decisions making of the Network and the communication among the nodes of the network and the coordinating team. The network web site is well kept and regularly updated. During the fourth year of the contract, it received about 2000 hits. A special role in the management was played by the network meetings that are reported in a separate list. In addition to the scientific programme, there was an administrative meeting of the steering committee to follow up the network activities and discuss organisation and management matters. Such a meeting took place once in the 4th year, during the "Planck 08" conference in Barcelona (on 22.05.08).

DEVIATIONS/MODIFICATIONS TO THE ORIGINAL WORK PROGRAMME

Please indicate if the project

a) is, at this stage, being implemented as originally planned

If you answered b) or c) please include a detailed description of the modifications in the report (one page)

ADDITIONAL INFORMATION

Please indicate any additional information, which may be considered useful to assess the work done during the reporting period.

Attachments	Conferences4.pdf, Publications4.pdf, NetworkMeetings4.pdf, highlights4.pdf
Name	
Date	
Signature	