

Foreword to the Proceedings of the Corfu Summer Institute School and Workshops on Elementary Particle Physics and Gravity (CORFU2013-14)

Dedicated to the Nobel Prize Winner in Physics 2013 François Englert, a great scientist, who honored the Corfu Meetings with his constant support.

1. Foreword

These are the Proceedings of the Summer Schools and Workshops on the Standard Model and Beyond during August 31st - September 11th, 2013 and September 3rd - 14th, 2014 as well as of the Workshop on Quantum Fields and Strings during September 14th - 21st, 2014.

The present Proceedings are dedicated to the Nobel Laureate François Englert, who honored the National Technical University in Athens (NTUA) by becoming its Honorary Doctor on May 12th, 2015. The first article of these proceedings is written by Lars Brink, who was the President of the Physics Nobel Committee in 2013, and is based on his public talk entitled “The Nobel Prize in Physics 2013” which he delivered on September 15th during CORFU2014.

We refer to the websites

<http://www.physics.ntua.gr/corfu2013>

<http://www.physics.ntua.gr/corfu2014>

for all scientific and organizational details.

The Corfu Summer Institute has a very long, interesting and successful history. The Corfu Meetings started as a Summer School on EPP in 1982. Its main mission was to complement the education of Greek graduate students; however since then it has developed into a leading international Summer Institute in the field of elementary particle physics (covering both experimental and theoretical advances) and, more recently, of gravity. In addition, it has launched a very rich outreach program to teachers and school students that has been widely appreciated by the local society and scientific community over the years.

The “Schools and Workshops on Elementary Particle Physics and Gravity” were hosted in the Mon Repos Conference Center of the European Institute for Sciences and their Applications (EISA).

The Summer Schools and Workshops on the Standard Model and Beyond 2013, 2014 covered the following topics: Electroweak Physics, Perturbative and Lattice QCD, Heavy Ions/Quark Gluon Plasma, Higgs, Flavour Physics, Neutrino Physics, SUSY and SUGRA, Physics Beyond the Standard Model at the LHC, Extra Dimensions, String Theory, Standard Cosmology, Astroparticle Physics and Cosmology, Gauge/Gravity Duality, LHC, ATLAS, CMS, ALICE, LHCb, CLIC, ILC, FCC, LHC upgrade, BICEP2.

Both events were organized and supported by the ITN's: HiggsTools, Unification in the LHC Era, Invisibles, LHCPhenoNet, the ERC Grants: LHCtheory Theoretical Predictions and Analyses of LHC Physics: "Advancing the Precision Frontier", MassTeV, SUPERFIELDS and the Institutes: Max Planck Institute for Physics, CERN, SAMPS - National Technical University of Athens, Deutsches Elektronen-Synchrotron (DESY), IPPP Durham, LAPP, IFT Madrid, Sommerfeld Center for Theoretical Physics, University of Uppsala SISSA, LPTENS, ICTP, LAPTH, University of Warsaw, University of Granada, Technical University of Lisbon, IFIC Valencia, Oxford University, Universidad Autonoma de Madrid, Scuola Normale Superiore, Pisa, University of Uppsala, NCSR "Demokritos", University of Athens.

The "Summer School and Workshop on the Standard Model and Beyond" scientific programme during **CORFU2013** was as follows:

Sunday Sept 1st

School lectures		
09.00-10.00	Electroweak Interactions - theory	W. Hollik (MPI Munich)
10.00-11.00	QCD	R. Pittau (Granada U.)
11.00-11.30	Coffee Break	
11.30-12.30	Electroweak Interactions - theory	W. Hollik (MPI Munich)
12.30-13.30	QCD	R. Pittau (Granada U.)
13.30-16.00	Lunch Break	
16.00-17.00	Status of experimental searches at the LHC: ATLAS	J. Butterworth (U. College London)
17.00-18.00	CMS physics results	J. Varela (LIP Lisbon)
18.00-18.30	Coffee Break	
18.30-19.30	LHC and LHC upgrade	E. Tsesmelis (CERN & Oxford U.)
Workshop talk		
19.30-20.10	Dark Matter indirect detection: recent developments and perspectives	M. Cirelli (Saclay, IPhT)

Monday Sept 2nd

School lectures		
09.00-10.00	Electroweak Interactions	W. Hollik (MPI Munich)
10.00-11.00	QCD	R. Pittau (Granada U.)
11.00-11.30	Coffee Break	
11.30-12.30	Neutrino Physics - Theory	P. Hernandez (Valencia U.)
12.30-13.30	Neutrino Physics - Exp	D. Wark (Oxford U. & STFC)
13.30-16.00	Lunch Break	
16.00-17.00	Neutrino Physics - Theory	P. Hernandez (Valencia U.)
17.00-18.00	Flavour Physics - Theory	A. Pich (Valencia U.)
18.00-18.20	Coffee Break	
18.20-18.50	Discussion	
Workshop and students talks		
18.50-19.10	Three-loop beta-function for the Higgs self-coupling and the vacuum stability problem in the SM	M. Frederik Zoller (KIT)
19.10-19.25	NNLO corrections to the decay $B \rightarrow D \pi$	S. Kraenkl (Siegen U.)
19.25-19.40	Limits on Lorentz violation in neutral Kaon decay	K. Vos (Groningen U.)

19.40-19.55	Higgs boson production at the LHC: NNLO partonic cross sections through order epsilon and epsilon and convolutions with splitting functions to N3LO	M. Hoeschele (KIT)
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Tuesday Sept 3rd

School lectures		
09.00-10.00	Flavour Physics - Theory	A. Pich (Valencia U.)
10.00-11.00	Higgs- Theory	N. Mahmoudi (CERN & LPC Clermont-Ferrand)
11.00-11.30	Coffee Break	
11.30-12.30	Experimental status of Higgs Physics	G. Tonelli (INFN, Pisa)
12.30-13.30	Higgs- Theory	N. Mahmoudi (CERN & LPC Clermont-Ferrand)
13.30-16.00	Lunch Break	
16.00-17.00	LHCb	N. Harnew (Oxford U.)
Workshop and students talks		
17.00 - 17.40	The Electroweak Fit Revisited	M. Ciuchini (INFN, Rome)
17.40 - 18.00	A Higgslike Dilaton and conformal phase transition	A. Oleg (CP3-Origins)
18.00-18.20	Coffee Break	
18.20-18.50	Discussion	
18.50-19.30	Novel T-violation observable open to any decay channel at meson factories	F. J. Botella (Valencia U.)
19.30-19.50	Quantitative Study of Geometrical Scaling in Deep Inelastic Scattering	T. Stebel (Jagiellonian U.)

Wednesday Sept 4th

School lectures		
09.00-10.00	Flavour Physics - Theory	A. Pich (Valencia U.)
10.00-11.00	Introduction to Supersymmetry and Current status of the MSSM	S. F. King (Southampton U.)
11.00-11.30	Coffee Break	
11.30-12.30	Introduction to Supersymmetry and Current status of the MSSM	S. F. King (Southampton U.)
12.30-13.30	Introduction to supergravity	H. – P. Nilles (Bonn U.)
13.30-16.00	Lunch Break	
Workshop and students talks		
16.00-16.40	Axions	J. Kim (Seoul U.)
16.40-17.20	Majorana Neutrinos and Quasidegeneracy at the origin of Large Leptonic Mixing	G. Branco (CFTP/IST/UTL, Lisboa)
17.20-18.00	A non-perturbative view of the Higgs hierarchy problem	N. Irges (NTUA)
18.00-18.20	Coffee Break	
18.20-18.50	Discussion	
18.50-19.10	A Natural Higgs Mass in Supersymmetry from Non-Decoupling Effects	K. Tobioka (Kavli IPMU)
19.10-19.30	Reduction of couplings in the MSSM	G. Tsamis (NTUA)
19.30-19.50	SM vacuum stability and the Weyl consistency conditions: Counting to three	J. Krog (CP3-Origins)

Thursday Sept 5th

School lectures		
09.00-10.00	Beyond the SM at the LHC	G. Ross (Oxford U.)
10.00-11.00	Introduction to supergravity	H. – P. Nilles (Bonn U.)
11.00-11.30	Coffee Break	
11.30-12.30	Introduction to Strings	M. Petropoulos (CPHT, Ecole Polytechnique)
12.30-13.30	TLEP/VHE-LHC: long term vision for Europe	R. Aleksan (CEA-SAclay)

13.30-16.00	Lunch Break	
Workshop and students talks		
16.00-16.40	125 GeV Higgs in NMSSM with moderate or large $\tan(\beta)$	M. Olechowski (Warsaw U.)
16.40-17.20	The Higgs Boson and the scale of new physics	G. Degrassi (Roma Tre)
17.20-18.00	Higgs couplings and spin determination	B. Mansoulié (DAPNIA, Saclay)
18.00-18.20	Coffee Break	
18.20-18.50	Discussion	
18.50-19.10	Why neutrinos are different?	S. Mollet (ULB)
19.10-19.30	Discovering light stops in RPV SUSY	R. Torre (Padova U.)
19.30-19.45	Neutrino Mixing from SUSY breaking	W. G. Hollik (KIT)

Friday Sept 6th

School lectures		
09.00-10.00	The Linear Collider Project	K. Buesser (DESY)
10.00-11.00	Introduction to Extra dimensions and Braneworlds	I. Antoniadis (Ecole Polyt. & CERN)
11.00-11.30	Coffee Break	
11.30-12.30	Introduction to Strings	M. Petropoulos (Ecole Polytechnique)
12.30-13.30	Beyond the SM at the LHC	G. Ross (Oxford U.)
13.30-16.00	Lunch Break	
Workshop and students talks		
16.00-16.40	Masses, mixings, Majorana and inverted hierarchy from 6 Dimensions	J.-M. Frere (ULB)
16.40-17.20	Minimal adjoint-SU(5) X Z ₄	D. E.-Costa (IST-ID, Lisboa)
17.20- 18.00	Reduction of couplings in Finite Theories and the in MSSM	M. Mondragon (UNAM)

20.00 Conference Dinner
Saturday Sept 7th: Full day excursion
Sunday Sept 8th

School lectures		
09.00-10.00	CLIC Project	L. Linssen (CERN)
10.00-11.00	Introduction to Extra dimensions and Braneworlds	I. Antoniadis (Ecole Polyt. & CERN)
11.00-11.30	Coffee Break	
Workshop and students talks		
11.30- 12.10	An extended scalar sector	P. Osland (Bergen U.)
12.10- 12.50	Strings, MSSM and LCH	H. – P. Nilles (Bonn U.)
12.50- 13.10	Higher derivatives in new-minimal supergravity	F. Farakos (NTUA)
13.10- 13.30	Three- and Four-point correlators of excited bosonic twist fields	P. Anastasopoulos (TUW)
13.30-16.00	Lunch Break	
16.00- 16.40	Scalar boson into gamma gamma at LHC: from the conception	L. Fayard (LAL Orsay)
16.40-17.20	Update on the Inert Doublet Model	M. Krawczyk (Warsaw U.)
17.20- 18.00	Experimental Challenges of the European Strategy for Particle Physics	S. White (Rockefeller U.)
18.00-18.20	Coffee Break	
18.20-18.50	Discussion	
18.30-19.05	Search for dark matter at the LHC and with astrophysical experiments Decaying Supersymmetric Dark Matter and 130 GeV Fermi Gamma-ray Line	L. Ali Cavazonza (RWTH Aachen)
19.05-19.20	Decaying Supersymmetric Dark Matter and 130 GeV Fermi Gamma-ray Line	S. P. Liew (Tokyo U.)
19.20-19.35	Extra U(1), effective operators, anomalies and dark matter	L. Heurtier (Ecole Polytechnique)

Monday Sept 9th

School lectures		
09.00-10.00	Intro to Gauge/Gravity Duality	A. Starinets (Oxford U.)
10.00-11.00	Dark matter	S. Sarkar (Oxford U.)
11.00-11.30	Coffee Break	
11.30-12.30	Dark matter	S. Sarkar (Oxford U.)
Workshop and students talks		
12.30-13.10	An S3 model with multiple Higgs doublets	U. J. Saldana-Saalazar (UNAM)
13.10-17.00	Lunch Break	
Workshop and students talks		
17.00-17.40	Doing precision physics at the LHC	J. Santiago (Granada U.)
17.40-17.55	Simplified Models and the Interpretation of Supersymmetry Searches	J. Sonneveld (RWTH Aachen)
17.55-18.10	Renormalizing the Non-Renormalizable: Asymptotic Safety in Quantum Gravity	N. Christiansen (Heidelberg U.)
18.10-18.25	Coffee Break	
18.25-18.50	Discussion	
18.50-19.05	Lepton Mixing and generalized CP with large discrete Symmetries	T. Neder (Southampton U.)
19.05-19.20	The N2 dominated scenario of leptogenesis	M. Re Fiorentin (Southampton U.)
19.20-19.35	Oscillons and oscillating kinks in the Abelian-Higgs model	C. Tsagarakis (Athens U.)

Tuesday Sept 10th

School lectures		
09.00-10.00	Intro to Gauge/Gravity Duality	A. Starinets (Oxford U.)
10.00-11.00	F- Theory GUT's	G. Leontaris (Ioannina U.)
11.00-11.20	Coffee Break	
11.20-12.20	Dark matter	S. Sarkar (Oxford U.)
Workshop and students talks		
12.20-12.40	Dark matter in the MSSM	A. Arbey (CRAL Lyon & CERN)
12.40-12.55	Higgs mass measurement in the diphoton channel at ATLAS	C. Becot (LAL, Orsay)
School lectures		
12.55-13.55	Intro to Cosmology	S. Sarkar (Oxford U.)

The Scientific Organizers were:

F. del Aguila (Granada U.), I. Antoniadis (Ecole Polyt. & CERN), R. Barbieri (SNS, Pisa), M. B. Gavela (Autonoma U., Madrid), W. Hollik (MPI, Munich), J. Kalinowski (Warsaw U.), R. Pittau (U. Granada), M. N. Rebelo (T. U. Lisbon), A. Ringwald (DESY), G. Rodrigo (IFIC Valencia), S. Sarkar (Oxford U.), E. Tsesmelis (Oxford U. & CERN).

The “Summer School and Workshop on the Standard Model and Beyond” scientific programme during **CORFU2014** was as follows:

Thursday Sept 4th

School lectures		
9:00 - 10:00	Electroweak Standard Model 1	G. Degrassi (U. Roma Tre)
10:00 - 11:00	Flavour Physics 1	F. Feruglio (INFN, Padua)
11:00 - 11:30	Coffee break	
11:30 - 12:30	Electroweak Standard Model 2	G. Degrassi (U. Roma Tre)
12:30 - 13:30	Flavour Physics 2	F. Feruglio (INFN, Padua)

13:30 - 16:00	Lunch break	
16:00 - 17:00	Astroparticle Physics (dark matter searches)	S. Sarkar (Oxford U.)
Workshop and student's talks		
17:00 - 17:40	On the restricted nature of gauge theory extensions of the nu-mass extended SM	P. Minkowski (Bern U.) neglecting gravity
17:40 - 18:00	Radiative charged-lepton mass generation in multi- HDM	J. Penedo (IST/CFTP)
18:00 - 18:20	Coffee break	
18:20 - 18:50	Discussion	
18:50 - 19:30	Neutrino electromagnetic properties: new limits and phenomenology	A. Studenikin (Moscow State U. & JINR, Dubna)
19:30 - 20:10	BICEP2	S. Sarkar (Oxford U.)

Friday Sept 5th

School lectures		
9:00 - 10:00	Electroweak Standard Model 3	G. Degrassi (U. Roma Tre)
10:00 - 11:00	Perturbative QCD 1	F. Maltoni (Louvain U., CP3)
11:00 - 11:30	Coffee break	
11:30 - 12:30	Perturbative QCD 2	F. Maltoni (Louvain U., CP3)
12:30 - 13:30	Higgs Physics 1	A. Djouadi (U. Paris-sud)
13:30 - 16:00	Lunch break	
16:00 - 17:00	Neutrino Physics - theory 1	G. Altarelli (Rome III U. & CERN)
17:00 - 18:00	CLIC: physics and detectors at a future TeV-scale e ⁺ e ⁻ collider	L. Linssen (CERN)
18:00 - 18:20	Coffee break	
18:20 - 18:50	Discussion	
Workshop talks		
18:50 - 19:30	Scale versus Conformal Invariance	I. Sachs (LMU)
19:30 - 20:10	PDFs	A. Cooper-Sarkar (Oxford U.)

Saturday Sept 6th

School lectures		
9:00 - 10:00	Neutrino Physics - theory 2	G. Altarelli (Rome III U. / CERN)
10:00 - 11:00	Introduction to Supersymmetry 1	D. Kazakov (JINR, Dubna)
11:00 - 11:30	Coffee break	
11:30 - 12:30	Introduction to Supersymmetry 2	D. Kazakov (JINR, Dubna)
12:30 - 13:30	Higgs Physics 2	A. Djouadi (U. Paris-sud)
13:30 - 16:00	Lunch break	
16:00 - 17:00	Physics results from LHCb	N. Harnew (Oxford U.)
Workshop and student's talks		
17:00 - 17:40	Phenomenology of Light Sterile Neutrinos	C. Giunti (INFN Torino)
17:40 - 18:00	Production of Long-lived Sparticles at the LHC	M. Paucar Acosta (CBPF)
18:00 - 18:20	Coffee break	
18:20 - 18:50	Discussion	
18:50 - 19:30	BSM searches in ATLAS	A. Policicchio (INFN)

Sunday Sept 7th

School lectures		
9:00 - 10:00	Lattice QCD	P. Weisz (MPI, Munch)
10:00 - 11:00	BSM: bottom-up approach	G. Altarelli (Rome III U. / CERN)
11:00 - 11:30	Coffee break	
11:30 - 12:30	BSM: String/SUGRA 1	G. Ross (Oxford U.)
12:30 - 13:30	Introduction to Extra dimensions and Braneworlds 1	I. Antoniadis (École Polytechnique)

13:30 - 16:00	Lunch break	
16:00 - 17:00	Introduction to Extra dimensions and Braneworlds 2	I. Antoniadis (École Polytechnique)
17:00 - 18:00	BSM: String/SUGRA 2	G. Ross (Oxford U.)
18:00 - 18:20	Coffee break	
18:20 - 18:50	Discussion	
Workshop talks		
18:50 - 19:30	Time Reversal Violation for entangled neutral B mesons	J. Bernabeu (IFIC)
19:30 - 20:10	Physics prospects for the LHCb Upgrade	N. Harnew (Oxford U.)

Monday Sept 8th

School lectures		
9:00 - 10:00	Introduction to String Theory 1	C. Angelantonj (Turin U. & INFN, Turin)
10:00 - 11:00	Overview of ATLAS results	N. Konstandinis (U. College London)
11:00 - 11:30	Coffee break	
11:30 - 12:30	Physics results from CMS	P. Sphicas (Athens/CERN)
12:30 - 13:30	Physics results from ALICE	L. Ramello (U. Piemonte Orientale & INFN)
13:30 - 16:00	Lunch break	
Workshop and student's talks		
16:00 - 16:40	A method of the diff. equation approach to master integrals	D. Tommasini (NCSR Demokritos)
16:40 - 17:20	W. Kotlarski (Warsaw U.)	Higgs and the EW precision observables in the MRSSM
17:20 - 17:40	Extended Left-Right SUSY	D. Wegman (CFTP, IST, Lisboa)
17:40 - 18:00	Coffee break	
18:00 - 18:20	Discussion	
18:20 - 18:50	Higgs Physics in ATLAS	D. Fassouliotis (U. Athens)
18:50 - 19:30	Top physics in ATLAS	M.M. Llacer (Goettingen U.)

Tuesday Sept 9th

Workshop talks		
9:00 - 9:40	The approach to CP conservation in the 2HDM	P. Osland (U. Bergen)
9:40 - 10:20	a) Prospects for 2HDM CP violation in light of the LHC Higgs signal b) Two-Higgs Doublet Models with Scalar Singlet Dark Matter	B. Grzadkowski (Warsaw U.)
10:20 - 11:00	T. Jelinski (Silesia U.)	SO(10) inspired extended GMSB models
11:00 - 11:30	Coffee break	
School lectures		
11:30 - 12:30	Introduction to String Theory 2	C. Angelantonj (Turin U. & INFN, Turin)
Workshop and student's talks		
12:30 - 13:10	Flavourful searches for seesaw at LHC	J. A. Aguilar-Saavedra (Granada U.)
13:10 - 13:30	Large-Field Inflation and Supersymmetry Breaking	L. Heurtier (CPHT Ecole Polytechnique)
13:30 - 16:00	Lunch break	
16:00 - 16:40	SUSY fine tuning without prejudice	D. Ghilencea (CERN, Bucharest, IFIN-HH)
16:40 - 17:20	Reduction of couplings: MSSM and Finite	M. Mondragon (UNAM)
17:20 - 18:00	Vacuum stability in IDM	M. Krawczyk (Warsaw U.)
18:00 - 18:20	Coffee break	
18:20 - 18:50	Discussion	
18:50 - 19:30	Searches for dark matter in ATLAS	A. Barr (Oxford U.)

19:30 - 20:10	Second Order Standard Model	J. Espin (Nottingham U.)
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Wednesday Sept 10th

Workshop talks		
9:00 - 9:40	Hints of BSM physics in the SM effective	Z. Lalak (Warsaw U.)
9:40 - 10:20	Dark Energy and Dark Matter as Curvature	S. Capozziello (U. Napoli)
10:20 - 11:00	How much Dark Matter in the Solar System?	J. M. Frere (PhysTh -ULB)
11:00 - 11:30	Coffee break	
11:30 - 12:10	Four lepton signals of new physics at the LHC	F. del Aguila (Granada U.)
12:10 - 12:50	Progress on Scattering Amplitudes	P. Mastrolia (MPI, Munich)
12:50 - 13:30	Majorana Neutrinos and Quasi-Degeneracy at the Origin of Leptonic Mixing	G. Branco (CFTP/IST/ UL)

15.00 Half Day Excursion

Thursday Sept 11th

School lectures		
9:00 - 10:00	Astroparticle Physics (theory) 1	G. Lazarides (Thessaloniki U.)
10:00 - 11:00	Gauge-Gravity Duality 1	K. Papadodimas (U. Groningen & CERN)
11:00 - 11:30	Coffee break	
11:30 - 12:30	Astroparticle Physics (theory) 2	G. Lazarides (Thessaloniki U.)
12:30 - 13:30	Gauge-Gravity Duality 2	K. Papadodimas (U. Groningen & CERN)
13:30 - 16:00	Lunch break	
16:00 - 17:00	Higgs at the LHC (Experimental)	A. de Roeck (CERN)
Workshop and student's talks		
17:00 - 17:40	CMSSM With Generalized Yukawa Quasi-Unification: An Update	C. Pallis (Valencia U.)
17:40 - 18:10	Twisted state production	P. Anastasopoulos (TU Vienna)
18:10 - 18:30	Coffee break	
18:30 - 18:50	Discussion	
18:50 - 19:30	Astroparticle Physics (Experimental)	A. Morselli (Roma 2, INFN)

Friday Sept 12th

School lectures		
9:00 - 10:00	ILC - The International Linear Collider	F. Simon (MPI - Munich)
10:00 - 11:00	Future Highest-Energy Circular Colliders	F. Zimmermann (CERN)
11:00 - 11:30	Coffee break	
11:30 - 11:50	LHC upgrade	F. Zimmermann (CERN)
11:50 - 12:50	Introduction to Cosmology 1	V. Mukhanov (LMU, Munich)
Workshop and student's talks		
12:50 - 13:30	Phenomenology of a light singlet-like scalar in NMSSM	M. Badziak (Warsaw U.)
13:30 - 16:00	Lunch break	
16:00 - 17:00	Introduction to supergravity	U. Lindstrom (Uppsala U.)
17:00 - 18:00	Experimental Neutrino Physics	C. Andreopoulos (Liverpool U.)
18:00 - 18:20	Coffee break	
18:20 - 18:50	Discussion	

19.30 Greek night

Saturday Sept 13th

School lectures		
9:00 - 10:00	Introduction to Cosmology 2	V. Mukhanov (LMU, Munich)
Workshop and student's talks		
10:00 - 10:40	Proton Decay: constraints on New Physics	D. Emmanuel-Costa (CFTP, IST, U. Lisboa)
10:40 - 11:10	Coffee break	
11:10 - 11:50	BSM searches with CMS	M. Felcini (CERN, Boston U.)
11:50 - 12:30	Big Bang or Freeze?	C. Wetterich (U. Heidelberg)

The Scientific Organizers were:

F. del Aguila (Granada U.), I. Antoniadis (Ecole Polyt. & CERN), R. Barbieri (SNS, Pisa), M. B. Gavela (Autonoma U., Madrid), N. Glover (Durham U., IPPP), W. Hollik (MPI, Munich), J. Kalinowski (Warsaw U.), R. Pittau (U. Granada), G. Koutsoumbas (NTUA), M. N. Rebelo (T. U. Lisbon), A. Ringwald (DESY), G. Rodrigo (IFIC Valencia), S. Sarkar (Oxford U.), E. Tsesmelis (Oxford U. & CERN).

The **Workshop on Quantum Fields and Strings**, took place from September 14 to September 21, 2014. It was implemented under the ARISTEIA II action of the operational programme education and long life learning, co-funded by the European Union (European Social Fund) and National Resources (<http://www.edulll.gr>).

The Workshop covered the following topics, as follows: Workshop Topics Include: Supersymmetric Field Theories, Supergravity, Superstrings, Current Applications of AdS/CFT Correspondence, Integrability in Gauge and String Theories, Higher Spins, Generalized Geometry, Black Holes, Entanglement Entropy.

Sunday Sept 14th

Arrival Day

Monday Sept 15th

09.00-10.00	Higher Spins and Strings	M. Gaberdiel (ETH)
10.00-11.00	Supersymmetry on Curved Spaces	G. Festuccia (Niels Bohr Institute)
11:00-11:30	Coffee break	
11:30-12:30	G-structures, Calibrations and Generalized Geometry	D. Tsimpis (Lyon)
12:30-13:30	Non-Associative Geometry and Double Field Theory	D. Luest (LMU & MPI)
13:30 - 16:30	Lunch break	
16:30-17:00	Mini-Superspace Quantum Supergravity and its Hidden Hyperbolic Kac-Moody Structures	P. Spindel (U. Mons)
17:00-17:30	Extension of Chern-Simons Forms	S. Konitopoulos (Demokritos)
17:30-18:30	Proton Structure and Tensor Gluons	G. Savvidy (Demokritos)
18:00-18:30	Coffee break	
18:30-20:00	The Nobel Prize in Physics 2013	L. Brink (Chalmers University of Technology)

Tuesday Sept 16th

09.00-10.00	Higher Spins and Strings	M. Gaberdiel (ETH)
10.00-11.00	Supersymmetry on Curved Spaces	G. Festuccia (Niels Bohr Institute)
11:00-11:30	Coffee break	

11:30-12:30	G-structures, Calibrations and Generalized Geometry	D. Tsimpis (Lyon)
12:30-13:30	Localization in Various Dimensions	J. Minahan (Uppsala)
13:30 – 16:30	Lunch break	
16:30-17:00	Induced—Gravity Inflation in Supergravity Confronted with Planck2013 and BICEP2	C. Pallis (Valencia)
17:00-17:30	Three-point Correlators in the AdS/CFT Correspondence: From Weak to Strong Coupling	G. Georgiou (Demokritos)
17:30-18:00	Spectral Flow as a Map Between N=(2,0) Models	P. Athanasopoulos (Liverpool)
18:00-18:30	Coffee break	
18:30-19:30	Universality of Gauge Thresholds for Heterotic Vacua with Spontaneously Broken Supersymmetry	I. Florakis (CERN)

Wednesday Sept 17th

09.00-10.00	Supergravity and Exceptional Field Theory	H. Samtleben (Lyon)
10.00-11.00	Holographic Entanglement Entropy	V. Hubeny (Durham)
11:00-11:30	Coffee break	
11:30-12:30	Localization in Various Dimensions	J. Minahan (Uppsala)
12:30-13:30	Black-hole Quantum Mechanics	C. Gomez (U. Autonoma Madrid)
13:30 – 16:30	Lunch break	
16:30-17:00	Holographic Calculation of Renyi Entropies and Restrictions on Higher Derivative Terms	G. Pastras (NTUA)
17:00-17:30	Anisotropic Gauge/Gravity Dualities	D. Giataganas (U. Athens)
17:30-18:00	Large-spin Expansions of Giant Magnons	G. Linardopoulos (U. Athens)
18:00-18:30	Coffee break	
18:30-19:30	Holographic Fermions in the Charged Black Brane with Hyperscaling Violation	X.-M. Kuang (NTUA)
19:30-20:00	Canonical Charges and Asymptotic Symmetries in Four Dimensional Conformal Gravity Holography	I. Lovrekovic (Vienna Univ. Techn.)

Thursday Sept 18th

09.00-10.00	Supergravity and Exceptional Field Theory	H. Samtleben (Lyon)
10.00-11.00	Holographic Entanglement Entropy	V. Hubeny (Durham)
11:00-11:30	Coffee break	
11:30-12:30	Adiabatic Fluids	M. Rangamani (Durham)
12:30-13:30	Black-holes and Fire-walls	K. Papadodimas (CERN & Groningen)
13:30 – 16:30	Lunch break	
16:30-20:00	FREE AFTERNOON	

Friday Sept 19th

09.00-10.00	Black-holes and Fire-walls	K. Papadodimas (CERN & Groningen)
10.00-11.00	Double Field Theory And String Theory	O. Hohm (MIT)
11:00-11:30	Coffee break	
11:30-12:30	Double Field Theory And String Theory	O. Hohm (MIT)
12:30-13:30	Extended Supersymmetry and Four Dimensional Geometry	U. Lindstrom (Uppsala)
13:30 – 16:30	Lunch break	
16:30-17:00	Split Supersymmetry and Gauge Unification from D- Brane Models	C. Kokorelis (NTUA)

17:00-17:30	Superspace Formulation of Arbitrary Superspin Reprs of the 4D, N=1 Super-Poincare Group	K. Koutrolikos (U. Maryland)
17:30-18:00	Higher Derivatives in Supergravity and Inflation	F. Farakos (Masaryk U.)
18:00-18:30	Coffee break	
18:30-19:30	Anisotropic Fluid on the Brane from 5-dimensional Tidal Effects	H. Culetu (Ovidius U.)
19:30-20:00	Lifshitz Holography with Isotropic Scale	S. Prohazka (Vienna Univ. Techn.)

Saturday Sept 20th

09.00-10.00	Symmetries of Curved Superspace	S. Kuzenko (Western Australia)
10.00-11.00	Recent Developments on Supersymmetric Field Theories	D. Jafferis (Harvard)
11:00-11:30	Coffee break	
11:30-12:30	Recent Developments on Supersymmetric Field Theories	D. Jafferis (Harvard)
12:30-13:30	Two Double String Theory Actions: Non-covariance versus Covariance	F. Pezzella (INFN, Napoli)
13:30-16:30	Lunch break	
16:30-17:00	Supersymmetric U(N) Chern-Simons-Matter Theory and Phase Transitions	M. Tierz (U. Complutense Madrid)
17:00-17:30	Field Theories Invariant Under One-parameter Fermionic Symmetry	O. Radchenko (Tomsk)
17:30-18:00	Quantum Loops in Non—Local Gravity	S. Talaganis (Lancaster U)

Sunday Sept 21th

Departure day

Senior scientists had the opportunity to keep up with all the current developments in an exciting and inspiring scientific atmosphere, which is expected to lead to new collaborations and interesting results. Young researchers, received an excellent background to start working on their doctoral theses and the inspiration and enthusiasm for a successful completion of their research work. The Greek nights will remain unforgettable!

We sincerely thank everybody who contributed to the success of the CORFU2015, all speakers, the LOC and the conference secretary Mrs Ifigenia Moraiti.

Finally, we wish to express our gratitude to our sponsors whose financial contribution made it all possible.

1. Marie Curie Initial Training Network:

- *Unification in the LHC Era*
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3. Multimessenger Approach for Dark Matter Detection

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9. *Greek Ministry of Education and Religious affairs*
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12. *OTE: National Telecommunication Company*
13. *CERN*
14. *Deutsches Elektronen-Synchrotron (DESY)*
15. *Max Planck Institute for Physics*
16. *Max Planck Institute for Gravitational Physics (Albert Einstein Institute)*
17. *Sommerfeld Center for Theoretical Physics*
18. *National Center of Scientific Research "Demokritos"*
19. *SISSA: Scuola Internazionale Superiore di Studi Avanzati*
20. *Instituto de Física Teórica (IFT) UAM-CSIC*
21. *Universidad Autonoma de Madrid*
22. *Severo Ochoa award of excellence for the IFT*
23. *ICTP: The Abdus Salam International Centre for Theoretical Physics*
24. *IPPP Durham: Institute for Particle Physics Phenomenology*
25. *LAPP: Laboratoire d'Annecy-le-Vieux de Physique des Particules*
26. *LAPTH: Laboratoire d'Annecy-le-Vieux de Physique Theorique*
27. *LPTENS: Laboratoire de physique théorique ENS*
28. *Instituto de Fisica Teorica UAM/CSIC*
29. *ITP Heidelberg*
30. *Research Training Group `Models of Gravity'*
31. *Uppsala University*
32. *Bonn University*
33. *Società Italiana di Relatività Generale e Fisica della Gravitazione (SIGRAV)*
34. *Leibniz Universität Hannover*
35. *University of Athens*
36. *Ionian University*
37. *Centre de Physique Théorique, Ecole Polytechnique*

The Editors

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