PROCEEDINGS OF SCIENCE

Foreword to the Proceedings of the Corfu Summer Institute "School and Workshops on Elementary Particle Physics and Gravity" (CORFU2022)

Dedicated to the memory of Costas Kounnas

1. Foreword

These are the Proceedings of the scientific activities of CORFU2022, the 22nd Hellenic School and Workshops on Elementary Particle Physics and Gravity, which took place from August 28th to October 1st, 2022. The Workshops were hosted by the European Institute for Sciences and their Applications (EISA) in the conference center of the former Royal Palace Garden of Mon Repos and in the Corfu Municipal Theater *in Corfu, Greece.* The Corfu2022 activities consisted of eight Workshops and two Memorial Days, bringing together world-class scientists and young researchers to interact and forge new collaborations. It is worth noting that the CORFU2022 attracted a record number of scientists, with over 850 registrations! in total. Another record obviously is that during CORFU2022 were hosted 10 different sessions!

Specifically, the CORFU2022 hosted the following sessions*:*

- Workshop on the Standard Model and Beyond, 28 August – 08 September 2022
- Workshop on Features of a Quantum de Sitter Universe, 29 Aug – 04 September 2022
- Graham Ross Memorial Day, 01 September 2022
- Kostas Kounnas Memorial Day, 04 September 2022
- Workshop on Holography and the Swampland, 04 - 10 September 2022
- Workshop on Tensions in Cosmology, 07 - 12 September 2022
- Workshop on Celestial Amplitudes and Flat Space Holography, 11 - 18 September 2022
- Workshop on Noncommutative and Generalized Geometry in String Theory, Gauge Theory and Related Physical Models, 18 - 25 September 2022
- Workshop on Radiopharmaceutical Therapy (RPT) Normal Tissue Effects in the Clinic (TEC): RPT-TEC-2022, 24 - 29 September 2022
- Workshop on Trends in Hardware and Software for Monitoring and Understanding Earthquake Dynamics, 28 September - 01October 2022

All talks can be found on the homepage of CORFU2022:

http://www.physics.ntua.gr/corfu2022

In parallel to the main scientific programme, a rich programme of outreach activities took place. This included master classes for high school students, seminars for high school teachers, open talks for the general public in the Labs of Physical Sciences and the building of the Corfu Reading Society, exhibitions of CERN Gravitational Waves in the Foyer of the Corfu Municipal Theater, interviews in the media (TV, radio and newspapers and in a film supported by COST). In addition, the receptions of the social programme of the various sessions was enriched with cultural events given by the *"Mantzaros Philharmonic Association"* and the *"Skripero Philharmonic Association"* as well as by two choirs, the "*Choir of Corfu*" and*"the Epirus Choir Association"*.

These proceedings are dedicated to the memory of Costas Kounnas.

Costas Kounnas, passed away on January 21, 2022. Costas was an outstanding scientific personality with pioneering works in a variety of areas that covered large areas of theoretical physics. Costas has made outstanding contributions in the fields of theoretical particle physics, quantum field theory, supergravity theory, superstring theory, and string cosmology. Due to his impressive in quality, depth, and physical understanding scientific publications, Costas was recognized internationally as one of the most respected theoretical physicists of his generation. Last but not least, Costas Kounnas was deeply involved in establishing and developing the Corfu scientific meetings. This is an activity that started in 1982 in which Costas participated as a lecturer. Costas was involved in the subsequent years as a lecturer in the Schools, a main speaker at conferences, and a co-organizer of various scientific events in Corfu. Another pioneering scientific activity of Costas, which he was indeed dedicated to for around 40 years. He was able to attract some of the most renowned physicists from around the world to Corfu. The Corfu Institute (European Institute for Science and Applications-EISA) will forever remember Costas's immense efforts and accomplishments in transforming the Corfu scientific gatherings into the reality we all know from a long time ago.

One can read more about Costas' celebrated life here. Moreover, one can find the contributions of friends of Costas during the Memorial days in Corfu (September 2022) and ENS (July 2023) here.

Unfortunately, during 2022 we lost two more distinguished personalities, who were very close friends to the Corfu Institute activities:

* Harald Fritzsch passed away on the 16th of August 2022. Harald was a leading scientific figure in theoretical physicist known for his contributions to the theory of quarks, the development of Quantum Chromodynamics and the grand unification of the standard model of particle physics.

* Lars Brink passed away on October 29th, 2022. Lars made very significant and well recognized contributions to supersymmetry, supergravity, superspace, and superstrings, and the connections among them.

The EISA would like to express the deepest condolences to their families.

The Corfu Summer Institute has a very long, interesting and successful history. The Corfu Meetings started as a Summer School on EPP mostly for Greek graduate students in 1982, and 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 and cosmology. 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 structure of the "Summer Institute on EPP and Gravity 2022" was based on the general format developed, established and tested in all previous Corfu Meetings. It was hosted by the European Institute for Science and their Applications (EISA), which has been the host of the meetings since its foundation in 2006. EISA aims to serve as a permanent extension of the Corfu Summer Institutes, with the additional target of attracting first class scientists who can stay in Corfu for a long period and produce locally a significant research output. The scientific activities of CORFU2022 were held in the conference hall of Mon Repos in the town of Corfu, which is the permanent basis of EISA but in addition, due to covid restrictions, in its garden.

As we have reported a few times during recent years, we have had a very exciting development. The Corfu Municipality, responding to a call for proposals by the central Government, submitted a proposal for the renovation of three old buildings in the garden of Mon Repos. The proposal has been approved, and the grant has provided the funding for the realization of this project. Since last year, we have seen the renovation of the building progressing, and the hope is that by the end of this year it will be completed. This means that, hopefully, the dream of having buildings in Mon Repos hosting the participants of the EISA's scientific activities and providing them with office space and the necessary infrastructure will be realized by the end! Two of the buildings have been completed already. With this opportunity, we would like to thank very warmly MPP in Munich for the computers and the rest of the infrastructure. In particular, we would like to thank the acting directors Wolfgang Hollik, Allen Caldwell and Dieter Lust for their generous offers over the years and Thomas Hahn for realizing this project. Equally, very warm thanks are due to ITP Heidelberg and to Christof Wetterich for their generous technical equipment offer.

The first event, ***Workshop on the Standard Model and Beyond,*** took place from 28 August to 7 September 2022. It was co-organized by:
- The National Technical University of Athens
- The Municipality of Corfu
- The Regional Government of the Ionian Islands (Periphery of the Ionian Islands).

The Organizing Committee was:
K. Anagnostopoulos (NTUA), J. Kalinowski (Warsaw U.), M.N. Rebelo (CFTP/IST/U. Lisboa), E. Saridakis (NOA), G. Zoupanos (NTUA).

The Advisory Committee was:

F. del Aguila (Granada U.), J. J.A. Aguilar Saavedra (U. Granada), K. N. Anagnostopoulos (NTUA), I. Antoniadis (Ecole Polyt. & CERN), R. Barbieri (SNS, Pisa), M. B. Gavela (Autonoma U., Madrid), D. Ghilencea (IFIN), N. Glover (Durham U., IPPP), W. Hollik (MPI, Munich), J. Kalinowski (Warsaw U.), G. Koutsoumbas (NTUA), N. Mavromatos (NTUA), M. Neubert (Mains institute for Theoretical Physics) C. Papadopoulos (NCSR Demokritos), R. Pittau (U. Granada), M. N. Rebelo (T. U. Lisbon), A. Ringwald (DESY), G. Rodrigo (IFIC Valencia), E. Saridakis (NOA), S. Sarkar (Oxford U.), E. Tsesmelis (CERN), G. Zanderighi (CERN & Oxford U.), G. Zoupanos (NTUA).

The second event, the ***Workshop on Features of a Quantum de Sitter Universe,*** took place from 29 August to 4 September 2022. It was co-organized and supported by:

- the National Technical University of Athens,
- the Municipality of Corfu,
- the Regional Government of the Ionian Islands (Periphery of the Ionian Islands).

The Scientific Organizers were:
D. Anninos (King's College), T. Anous (U. Amsterdam), F. Denef (Columbia U.), D. Hofman (U Amsterdam).

The third event, ***Kounnas Memorial Day,*** took place on 4 September 2022. It was co-organized and supported by:

- the National Technical University of Athens,
- the Municipality of Corfu,
- the Regional Government of the Ionian Islands (Periphery of the Ionian Islands).

The Scientific Organizers were:
C. Bachas (École Normale Supérieure, Paris), A. Kehagias (NTU Athens), D. Lüst (LMU & Max Planck Inst), H. Partouche (École Polytechnique), M. Petropoulos (École Polytechnique), N. Toumbas (Cyprus U.), G. Zoupanos (NTU Athens)

The fourth event, the ***Workshop on Holography and the Swampland,*** took place from 4 to 10 September 2022.
It was co-organized and supported by:

- the National Technical University of Athens,
- the Municipality of Corfu,
- the Regional Government of the Ionian Islands (Periphery of the Ionian Islands).

The Scientific Organizers were:
A. Chatzistavrakidis (Bošković Inst.), D. Giataganas (National Sun Yat-sen University), A. Kehagias (NTU Athens), D. Lüst (LMU & Max Planck Inst), J. Rosseel (U Wien)

The fifth event, the ***Workshop on Tensions in Cosmology***, took place from 7 to 12 September 2022. It was supported by:

- the National Technical University of Athens,
- the Municipality of Corfu,
- the Regional Government of the Ionian Islands (Periphery of the Ionian Islands) and
- National Observatory of Athens

The Scientific Organizers were:
E. Saridakis (National Observatory of Athens), S. Basilakos (Academy of Athens), S. Capozziello (Università di Napoli), E. Di Valentino (University of Sheffield), O. Mena (Universidad de Valencia), S. Pan (Presidency University), J. Levi Said (University of Malta).

The sixth event, the ***Workshop on celestial amplitudes and flat space holography***, took place from 11 to 18 September 2022. It was co-organized and supported by:

- the National Technical University of Athens,
- the Municipality of Corfu,
- the Regional Government of the Ionian Islands (Periphery of the Ionian Islands).

The Scientific Organizers were:
T. Adamo (University of Edinburgh), A. Fotopoulos (Northeastern U.), A. Puhm (Ecole Polytechnique), S. Stieberger (LMU Munich)

The seventh event, ***Workshop on Noncommutative and generalized geometry in string theory, gauge theory and related physical models***, took place from 18 to 25 September 2022.
It was co-organized and supported by:

- the National Technical University of Athens,
- the Municipality of Corfu,
- the Regional Government of the Ionian Islands (Periphery of the Ionian Islands).

The Scientific Organizers were:
K. Anagnostopoulos (NTU Athens), P. Aschieri (U. Piemonte Orientale), H. Kawai (National Taiwan University), F. Lizzi (U Napoli Federico II and INFN Napoli), J. Nishimura (KEK & SOKENDAI Tsukuba), D. O'Connor (Dublin Instit Adv Studies), H. Steinacker (Vienna U.), R. Szabo (Heriot-Watt), S. Watamura (Tokohu U.), G. Zoupanos (NTU Athens).

The eighth event, ***Workshop on Radiopharmaceutical Therapy (RPT) Normal Tissue Effects in the Clinic (TEC) RPT-TEC-2022***, took place from 24 to 29 September 2022.

It was co-organized and supported by:

- Johns Hopkins U.
- the National Technical University of Athens,
- the Municipality of Corfu,
- the Regional Government of the Ionian Islands (Periphery of the Ionian Islands).

The Scientific Organizers were:
W. Bolch (University of Florida), J. Capala (National Cancer Institute Rockville), M. Cremonesi (Inst. Europeo di Oncologia, IRCCS), Y. Dewaraja (U Michigan Medical School), J. Gear (Royal Marsden NHSFT and Inst. of Cancer Research), G. Glatting (Ulm University), R.F. Hobbs (Johns Hopkins University), A. Kesner (Memorial Sloan-Kettering Cancer Center), A.P. Kiess (Johns Hopkins University), J. O'Donoghue (Memorial Sloan-Kettering Cancer Center), D. Pryma (U. Pennsylvania), N. Pandit-Taskar (Memorial Sloan-Kettering Cancer Center), G. Sgouros (Johns Hopkins University), L. Strigari (U. Bologna), S. Tagawa (Weill Cornell Medicine) T. Yusufaly (Johns Hopkins University), C. Uribe (U. British Columbia).

The ninth event, ***Workshop on Trends in Hardware and Software for monitoring and understanding Earthquake Dynamics***, took place from 24 to 29 September 2022.

It was co-organized and supported by:

- Ionian University
- the National Technical University of Athens,
- the Municipality of Corfu,
- National Observatory of Athens,
- National Kapodistrian University of Athens,
- the Regional Government of the Ionian Islands (Periphery of the Ionian Islands).

The Scientific Organizers were:

M. Avlonitis (Ionian University), G. Drakatos (National Observatory of Athens), N. Voulgaris (NKU Athens)

The outcome was indeed very impressive, given that the sessions gathered over 850 registered participants! in total. In short, internationally leading scientists have been gathered to participate in the Workshops and the two Memorial Days, presenting their recent achievements and creating a unique and stimulating scientific environment for the senior as well as the young scientists.

More specifically, the ***Workshop on the Standard Model and Beyond*** has attracted 181 registered senior and young scientists in total; 127 of them have presented their current research project as workshop speakers.

The full programme of the Workshop was the following:

28th of August 2022

	Opening	
17:00 - 17:30	James Pinfold	The MoEDAL-MAPP experiment - expanding the LHC's discovery horizon at Run-3 and beyond
17:30 - 18:00	Spyros Argyropoulos	Collider searches for dark matter in extended Higgs sectors
18:00 - 18:20	Coffee Break	
18:20 - 18:50	Holger Bech Nielsen	Dusty dark matter bubbles of a new vacuum stopped in Earth and radiating 3.5 keV X-rays
18:50 - 19:20	Nikos Mavromatos	A string-inspired running-vacuum-model of cosmology and the current tensions in cosmological data

29th of August 2022

9:00 – 09:30	Louis Fayard (Centre National de la Recherche Scientifique)	BEH boson(s) searches between 1964 and 2012
09:30 – 10:30	Markus Cristinziani	Recent results from ATLAS
10;30-11:00	Lydia Brenner	Higgs boson property measurements at the ATLAS and CMS experiments
11:00 - 11:30	Coffee break	
11:30 - 12:00	Franco Buccella (Napoli U.)	Planck formula for the gluon parton distribution in the
12:00 – 12:30	Jean-Marie Frere	Eta and Glueballs

12:30 - 12:45	Muhammad Ahmad	Observation of new structures in the J/psi J/psi mass spectrum in pp collisions at $\sqrt{s} = 13$~TeV
12:45 – 13:00	Diana Pyatiizbyantseva	Measurements of quartic coupling and vector boson scattering in ATLAS
13:00 – 13:30	Zbigniew Andrej Was (IFJ PAN)	New Physics signatures of interfering backgrounds
13:30 - 16:00	Lunch break	
16:00 – 17:00	Slawomir Marek Tkaczyk	Recent results from CMS
17:00 – 17:30	Janusz Gluza	Progress in the Standard Model precision calculations
17:30 - 17:45	Krzysztof Grzegorz Grzanka	Z-boson decay at the NNNLO level
17:45 - 18:00	Daniel Luke Milne	QCD Instantons at hadron colliders
18:00 - 18:20	Coffee break	
18:20 - 18:50	Kazuki Sakurai	Testing Bell inequalities in H -> tau, tau process at the ILC
18:50 - 19:10	Dimitris Varouchas	ATLAS Inner tracker upgrade in view of HL-LHC

30th of August 2022

09:00 - 09:30	Enrique Alvarez	The fate of horizons under quantum corrections
09:30 - 10:00	Pierre Salati	Cosmic-ray anti-helium nuclei or the quest for antimatter in the Universe
10:00 - 10:30	Celine Catherine A Degrande	Efficiently probing the SMEFT interference
10:30 - 11:00	Matthias Neubert	ALP-SMEFT interference
11:00 - 11:30	Coffee Break	
11:30 - 12:00	Jim Talbert	The geometric muSMEFT
12:00 - 12:30	Dmitry Kazakov	Non-renormalizable interactions
12:30 - 13:00	Ian Jack	Constraints on scalar-fermion theories
13:00 - 13:30	Gustavo Branco	Do the small numbers in the quark mixing arise from New Physics?
13:30 - 16:00	Lunch break	
16:00 - 16:30	Constantia Alexandrou	Probes of BSM physics using lattice QCD

16:30 - 17:00	Weonjong Lee	The current status of epsilon_K in lattice QCD
17:00 - 17:30	Belen Gavela Legazpi	Unconventional axions and ALPs
17:30 - 17:45	Armando Giovanni	A visible QCD axion explanation of the XENON1T excess and of (g-2)μ
17:45 - 18:00	Julien Touchèque	A Reduced basis for CP violation in SMEFT at colliders and its application to Diboson production
17:50 - 18:10	Coffee break	
18:20 - 18:35	Anton Kunčinas	Dark matter in S3-symmetric three-Higgs-doublet model
18:35 - 19:05	Sin Kyu Kang	A study of leptonic CP violation

20:00 Welcome Reception

31st of August 2022

09:00 - 10:00	Neville Harnew	Physics highlights from LHCb
10:00 - 10:30	Gino Isidori	Old and recent puzzles in flavor physics
10:30 - 11:00	Apostolos Pilaftsis	Leptogenesis and charged lepton flavour violation
11:00 - 11:30	Coffee break	
11:30 - 12:00	Oleg Lebedev	UV sensitivity of dark matter production
12:00 - 12:30	Pyungwon Ko	Role of dark Higgs boson in DM physics and Higgs inflation
12:30 - 13:00	Catalina Curceanu	Kaonic atoms at the DAFNE Collider in Italy: strangeness from accelerators to the stars
13:00 - 13:30	Blazenka Melic	Charm lifetimes
13:30 - 16:00	Lunch break	
16:00 - 16:30	Ashutosh Kotwal	High-precision measurement of the W boson mass with the CDF II detector
16:30 - 17:00	Wojciech Kotlarski	Precise calculation of the W boson pole mass beyond the Standard Model
17:00 - 17:30	Stefano Rigolin	Meson decays into invisible ALP
17:30 - 18:00	Massimo Blasone	Complete complementarity relations for quantum correlations in neutrino oscillations
18:00 - 18:20	Coffee break	
18:20 - 18:35	Paulina Michalak	Origin of mass scales in scale-symmetric extension of Standard Model

18:35 - 19:05	Kei Yamamoto	Phenomenological implications of the modular symmetry
19:05 - 19:35	Perseas Christodoulidis	Attractor solutions and features in the power spectrum from turns in multi-field inflation

1st of September 2022

Graham Ross Memorial Day

09:00 - 09:05	George Zoupanos	Remembering Graham Ross
09:05 - 09:45	Alan Martin	Alan Martin and Graham Ross
09:45 - 10:15	Subir Sarkar	A challenge to the cosmological standard model
10:15 - 10:30	Magda Lola	Remembering Graham Ross
10:30 - 11:00	Steve King	Unified theories of flavour
11:00 - 11:30	Coffee break	
11:30 - 11:45	Stuart Raby	Remembering Graham Ross
11:45 - 12:00	Stefan Pokorski	Remembering Graham Ross
12:00 - 12:30	Tim Jones	The RG, LOOPS and GGR
12:30 - 13:00	Myriam Mondragon	Finite unified theories and their predictions
13:00 - 13:30	Dumitru Ghilencea	SM in Weyl conformal geometry
13:30 - 16:00	Lunch break	
15:30 - 16:00	Burt Ovrut	FIMP dark matter in heterotic M-theory
16:00 - 16:30	George Leontaris	Seeking de Sitter vacua in the string landscape
16:30 - 17:00	Zygmunt Lalak	Scale invariant SM and inhomogeneous universe
17:00 - 17:30	Amanda Cooper-Sarkar	Parton distribution functions for discovery physics at the LHC
17:30 - 18:00	Christopher Hill	Gravitational contact terms ... or ... does the Jordan frame really exist?
18:00 - 18:30	Coffee break	
18:20 - 18:35	John Ellis	Remembering Graham Ross on-line

18:35 - 19:05	Ivo de Medeiros Varzielas	Family symmetries and the origin of fermion masses and mixings

2nd of September 2022

09:00 - 10:00	Albert De Roeck	Review on neutrino physics: experiment
10:00 - 10:30	Pasquale Di Bari	Dark matter from sterile-sterile neutrino mixing
10:30 - 11:00	Aldo Morselli	Indirect dark-matter searches with gamma-rays experiments: status and future plans from 300 KeV to
11:00 - 11:15	Coffee Break	
11:15 - 11:30	Luca Smaldone	New developments for neutrino mixing in quantum field theory
11:30 - 12:00	Sung Woo Youn	Axion dark matter search
12:00 - 12:15	Martti Raidal	A complete model of cosmology and particle physics scales

Excursion

3rd of September 2022

09:00 - 09:30	Carlos Munoz	Long-lived lightest supersymmetric particles at the LHC and MUON g-2 experiments
09:30 - 10:00	Alexander Belyaev	Vector dark matter via a fermionic portal from a new gauge sector
10:00 - 10:30	Hye-Sung Lee	Subfrequency light signals of the dark sector
10:30 - 11:00	Rocky Kolb	Gravitational Origin for Dark Matter
11:00 - 11:30	Coffee break	
11:30 - 12:00	Vasiliki Mitsou	Searches for Supersymmetry with the ATLAS and CMS detectors
12:00 - 12:30	Nazila Mahmoudi	Higgs properties and supersymmetry
12:30 - 13:00	German Valencia	Clustering and visualisation tools to study high dimensional parameter spaces: B anomalies example

13:00 - 13:30	Manuel Asorey	New aspects of higher derivative theories
13:30 - 16:00	Lunch break	
16:00 - 16:30	Stefan Pokorski	BSM physics in the Higgs couplings and flavour symmetries
16:30 - 17:00	Hyejung Stoeckinger-Kim	Muon magnetic moment in Physics beyond the Standard Model after Fermilab Run-1
17:00 - 18:00	Emmanuel Tsesmelis	The FCC Feasibility Study and Global Collaboration
18:00 - 18:20	Coffee break	
18:20 - 18:35	Daniel Wilbern	Searches for new phenomena in leptonic final states
18:35 - 18:50	Alessandro Dondarini	Indirect detections prospects for WIMP minimal dark matter
18:50 - 19:05	Taiga Miyachi	False vacuum decay in a two-dimensional black hole spacetime

5th of September 2022

9:00 – 9:30	Paul Frampton	Is there additional dark matter?
9:30 – 10:00	David Marzocca	From flavour anomalies to future colliders
10:00 – 10:30	Simone Biondini	Electroweak phase transition and dark matter simplified models
10:30 – 11:00	Jihn E. Kim	Dark Energy from a New Confining Force
11:00 - 11:30	Coffee break	
11:30 - 12:00	Mariano Quiros Carcelen	Baryogenesis from the inflaton
12:00 – 12:30	Paride Paradisi	Hunting for new physics with leptonic g-2
12:30 – 12:45	Liljana Morvaj	Searches for additional Higgs bosons in ATLAS
12:45 – 13:00	Rafal Maselek	Muon g-2 in SUSY with and without stable neutralinos
13:00 – 13:30	Nishu Nishu	Searches for dark matter with the ATLAS and CMS detectors
13:30 - 16:00	Lunch break	
16:00 – 17:00	Markus Zerlauth	HL-LHC project
17:00 - 17:30	Mieczyslaw Witold Krasny	Gamma Factory -- New physics opportunities for CERN

17:30 – 17:45	Fotis Koutroulis	A profile of a Higgs mechanism under a UV and quantum, 1st order phase transition
17:45 – 18:00	Kaishu Saito	10^{20} Hz stochastic gravitational wave
18:00 - 18:20	Coffee break	
18:20 – 18:50	Gazdzicki Marek	Diagram of high-energy nuclear collisions
18:50 - 19:05	Inoue Tomonori	Correspondence of topological classification between quantum graph extra dimension and topological matter
19:05 - 19:35	Coriano Claudio	A nonlocal 4D Einstein Gauss Bonnet theory

6th of September 2022

9:00 – 9:30	Adam Abel Steven	UV/IR mixing, misaligned supersymmetry, and the running of couplings in string theory
9:30 – 10:00	Pallis Constantinos	Starobinsky-type B-L Higgs inflation Leading beyond MSSM
10:00 – 10:30	Branchina Vincenzo	Physical tuning and Naturalness
10:30 – 11:00	Grzadkowski Bohdan	Higgs-boson reheating and frozen-in DM
11:00 - 11:30	Coffee break	
11:30 - 12:00	Goudelis Andreas	Dark matter and baryogenesis from freeze-in
12:00 – 12:30	KokorelisChristos	D-brane neutrino phenomenology
12:30 – 13:00	Karam Alexandros	Scale Invariance in particle physics and cosmology
13:00 – 13:30	Reuter Jürgen	Precision test of the muon-Higgs coupling at a high-energy muon collider
13:30 - 16:00	Lunch Break	
16:00 – 16:30	Nicolis Stam	Noisy SUSY
16:30-17:00	Stoeckinger Dominik	Dimensional regularization and γ5 — no-compromise approach to the BMHV schemeuting gamma5

17:00 – 17:20	Lamba Priyanka	A fresh look at proton decay in SUSY SU(5)
17:20 – 17:50	Doršner Ilja	Novel leptoquark pair production @LHC
17:50 -18:10	Coffee break	
18:10 – 18:40	Lopez PavonJacobo	New physics in neutrino oscillations
18:40 – 19:10	Ketov Sergey	Inflation and gravitational effective action from higher dimensions

20:00 Conference Dinner

7th of September 2022

9:00 – 9:30	Hikaru Kawai	Multicritical point principle and electroweak scale
9:30 – 10:00	Ignatios Antoniadis	Challenges in supersymmetric cosmology
10:00 – 10:15	Marco Matteini	Analytic false-vacuum decay rate in the thin-wall approximation
10:15 – 10:30	Sato Sota	Gravitational positivity bounds on dark photons
10:30 – 11:00	Benakli Karim	Dirac, Fierz, Pauli and charged particles with spin >1
11:00 - 11:30	Coffee break	
11:30 - 12:00	Raby Stuart	Neutrinos in an SU(5) global F theory model
12:00 – 12:30	Hosotani Yutaka	Holography in anomaly flow in orbifold gauge theory
12:30 – 12:45	Nomura Kimihiro	Quasinormal modes of black holes in nonlinear electrodynamics
12:45 – 13:00	Takeuchi Maki	Index theorem on T^2/Z_2 orbifold with magnetic flux
13:00 – 13:15	Nishii Kanji	String excitation by initial singularity of Inflation
13:15 – 13:45	Ioannis Rizos	On three-generation super-no-scale heterotic string models

13:45 - 16:00	Lunch Break	
16:00 – 16:30	Savvidis Georgios	Stability of Yang Mills vacuum state
16:30-17:00	Porod Werner	Hunting scalar partners of the Higgs boson at the LHC
17:00 - 17:30	Senjanovic Goran	Grand Unification and W-mass
17:30 – 18:00	Sola Joan	Cosmological constant and equation of state of the quantum vacuum

The ***Workshop on Features of a Quantum de Sitter Universe*** has 35 registered senior and young scientists in total.

The Workshop was discussion-oriented, with two talks a day.

The full programme was:

29th of August 2022

Registration Day

30th of August 2022

Fliss Jackson	de Sitter QFT and conformal group theory
Albert Law	de Sitter QFT and conformal group theory

31st of August 2022

Baumgart Matthew	stochastic inflation/infrared considerations
Burgess Cliff	stochastic inflation/infrared considerations

1st of September 2022

Fiol Bartomeu	What I learned about Algebraic QFT
Dasgupta Keshav	de Sitter as a Glauber Sudarchan state

2nd of September 2022

Silverstein Eva	Ttbar and de Sitter
Galante Damian	Low dimensional de Sitter

3rd of September 2022

Muehlmann Beatrix	Low dimensional de Sitter
Pajer Enrico	Cosmological Bootstrap and de Sitter
Mirbabayi Mehrdad	Uptunneling to de Sitter

4th of September 2022

Departure day

Kounnas Memorial Day attracted 50 senior scientists and also the participants from the Workshop on the Standard Model and Beyond.

The full program was:

9:30 – 9:45	Opening	
9:45 – 10:10	Jean Iliopoulos	École Normale Supérieure, Paris
10:10 – 10:35	Emmanuel Floratos	NKUA
10:35 – 11:00	Fabio Zwirner	Universita di Padova
11:00 – 11:25	Ignatios Antoniadis	LPTHE, Paris
11:25 – 11:50	Coffee Break	
11:50 – 12:15	Elias Kiritsis	University of Crete
12:15 – 12:40	Mirjam Cvetic	University of Pennsylvania (US)
12:40 - 16:00	Lunch Break	
16:00 – 16:25	Dan Israel	LPTHE, Sorbonne Universite
16:25 – 16:50	Herve Partouche	CNRS - Ecole Polytechnique
16:50 – 17:15	Carlo Angelantonj	University of Torino
17:15 – 17.40	Coffee Break	
17:40 – 18:05	Mariano Quiros	IFAE
18:05 – 18:30	Ioannis Florakis	University of Ioannina
18:30 – 19:05	Costas Bachas	École Normale Supérieure, Paris

The ***Workshop on Tensions in Cosmology*** attracted 241 registered senior and young scientists in total; 98 of them presented their current research project as workshop speakers.

The full programme was:

7th of September 2022

Registration

*** PL=Plenary, PS A=Parallel Session A, PS B=Parallel Session B**

8th of September 2022

Session	Time	Speaker	Title
	8:00 – 8:45		**Registration**
PL	8:45-9:00		**Welcome – E. Saridakis, E. Di Valentino**
	9:00-9:30	L. Verde	How many h are there? And what do they mean?
	9:30-10:00	D. Scolnic	Constraints on Cosmological Expansion with Type Ia Supernovae
	10:00-10:30	C. Hill	Toward Cosmological Concordance with New Physics in the Dark Sector
	10:30-10:50	M. Moresco	Addressing cosmological tensions with new emerging probes: a perspective from cosmic chronometers
	10:50-11:10	L. Koopmans	Measuring H0 with strongly lensed quasars
	11:10-11:30		**Coffee Break**
PL	11:30-11:50	P. Brax	Inhomogeneous Hubble diagram from vector K-mouflage
	11:50-12:10	S. Dhawan	A uniform Zwicky Transient Facility-tip of the red giant branch distance ladder Implications for the Hubble constant
	12:10-12:30	C. Escamilla-Rivera	Cosmological tension analyses in extended theories of gravity: artificial neutral path
	12:30-12:50	Y. Akrami	Large-Scale Anomalies in the Cosmic Microwave Background Current Status, Future Prospects, and Possible Explanations
	12:50-15:30	**Lunch Break**	

Session	Time	Speaker	Title
PL	15:30-15:50	I. Saltas	Hubble tension: Understanding the theoretical uncertainties of TRGB calibrations
	15:50-16:10	D. Staicova	Inferring cosmological parameters from Baryon Acoustic Oscillations datasets
	16:10-16:30	M. Zumalacárregui	Towards solutions to the Hubble problem beyond Einstein's Gravity
	16:30-16:50	W. Handley	Next generation cosmological analysis with nested sampling
	16:50-17:10	R. Anderson	A 1% calibration of the Galactic Cepheid Luminosity scale based on cluster Cepheids strengthens the Hubble tension
	21:00:00	**Welcome Drinks**	

9th of September 2022

Session	Time	Speaker	Title
PL	9:00-9:30	M. Plionis	Cosmological Constraints using Alternative Hubble Expansion Tracers
	9:30-10:00	G. Efstathiou	A possible non-linear solution to the S8 tension
	10:00-10:30	A. Amon	The Dark Energy Survey and the S8 tension
	10:30-10:50	S. Mukohyama	Modified gravity with 2 d.o.f. as a tool to address tensions in cosmology
	10:50-11:10	A. De Felice	How to address tensions in cosmology by modified gravity with 2 d.o.f.
	11:10-11:30	**Coffee Break**	
PL	11:30-11:50	J. Blakeslee	Current and Future Constraints on H0 from Infrared SBF
	11:50-12:10	A. Kamenshchik	Tensions with cosmological singularities: Should we try to avoid their appearance?
	12:10-12:30	S. Kumar	A robust explanation of CMB anomalies with a new formulation of inflationary quantum fluctuations
	12:30-12:50	P. Frampton	Is there Additional Dark Matter?

	12:50-13:10	M. Dabrowski	Barrow holographic dark energy and a possible reduction of the Hubble tension
	13:10-13:30	L. Perivolaropoulos	The tensions of ΛCDM and a late gravitational transition
	13:30-15:30	**Lunch Break**	
PS A	15:30-15:40	V. Zarikas	Asymptotic Safety and the Cosmic Coincidence Problem
PS B		C. Paganini	A Mechanism of Baryogenesis for Causal Fermion Systems
PS A	15:40-15:50	H. Nielsen	Domain walls low tension
PS B		B. Giblin	Slicing through the tension: getting more cosmology from weak lensing
PS A	5:50-16:00	E. Bellini	Towards realistic constraints on alternative theories of gravity
PS B		N. Robertson	Consistent lensing and clustering in a low-S8 Universe with BOSS, DES Year 3, HSC Year 1 and KiDS-1000
PS A	16:00-16:10	M. Lucca	Is a new cosmological tension emerging from the (Lyman-α) forest?
PS B		H. Tzerefos	Alleviation of the σ8 tension in soft cosmology
PS A	16:10-16:20	C. Moreno Pulido	Quantum vacuum, a cosmic chameleon
PS B		K. Asvesta	Tilted cosmology and tensions with the ΛCDM model using SNIa
PS A	16:20-16:30	M. Haslbauer	The KBC void and Hubble tension in ΛCDM and Milgromian dynamics
PS B		G. Korkidis	A new probe of dark energy
PS A	16:30-16:40	M. Cruz Reyes	A 1.7% calibration of the Galactic Cepheid luminosity scale based on Gaia EDR3 open cluster astrometry
PS B		R. Briffa	Late-time Accelerating Universe in Teleparallel Gravity (Student Talk)
PS A	16:40-16:50	E. Teixeira	Cosmological Implications of a Kinetically Coupled Dark Sector
PS B		M. Caruana	Well-Tempered Cosmology in Teleparallel Horndeski
PS A	16:50-17:00	T. Hoyt	A Legacy Calibration of the Tip of the Red Giant Branch Distance Scale as Constrained by the Hubble Space Telescope Implications for the Hubble Constant

PS B		G. Galloni	Assessing the hemispherical power asymmetry with gravitational waves
PS A	17:00-17:10	D. Milakovic	A new era of fine structure constant measurements at high redshift
PS B		L. Pizzuti	Testing tension with GR using the mass profiles of galaxy clusters
PS A	17:10-17:20	A. Reeves	Early Dark Energy meets massive neutrinos
PS B		S. Kadam	Teleparallel scalar-tensor gravity through cosmological dynamical systems and Its relevance to H0 Tension
	17:20-18:00	Coffee Break	
PL	18:00-18:30	W. Freedman	Increasing Accuracy in the Measurement of H0 Using the Tip of the Red Giant Branch
	18:30-18:50	F. Renzi	The Etherington-Hubble relation
	18:50-19:10	A. Marcianò	Hubble tension and quantum gravity effects
	19:10-19:30	E. Mottola	Dynamical Vacuum Energy and Cosmological Tensions
	19:30-19:50	E. Guendelman	Resolving tensions in cosmology via the modified measures approach to control vacuum energies
	21:00:00	**Conference Dinner (Greek Night)**	

10th of September 2022

Session	Time	Speaker	Title
PL	9:00-9:30	A. Riess	Comprehensive Measurements of the Local Value of H0 with 1 km/s/Mpc Uncertainty from the SH0ES Team
	9:30-9:50	P. Kroupa	The existence-of-dark-matter tension
	9:50-10:10	L. Breuval	The Cepheid Distance Scale and its Metallicity Dependence
	10:10-10:30	D. Pesce	A geometric measurement of H0 by the Megamaser Cosmology Project
	10:30-10:50	T. Clifton	Generalizing the Friedmann Model in Light of Cosmological Tensions
	10:50-11:10	M. Dainotti	On the Hubble constant tension and its evolution

	11:10-11:30		**Coffee Break**
PL	11:30-11:50	A. Cuesta	The H0 tension and the physics of the neutrino sector
	11:50-12:10	A. Coley	Cosmological Tensions: revisiting spatial curvature.
	12:10-12:30	R. Maartens	Testing the foundations of the concordance model
	12:30-12:50	C. Marinoni	The art of building a smooth cosmic distance ladder in a perturbed universe
	13:00-20:00		**BUS EXCURSION**

11th of September 2022

Session	Time	Speaker	Title
PL	9:00-9:30	H. Gil-Marín	Model-agnostic interpretation of 10 billion years of cosmic evolution traced by BOSS and eBOSS data
	9:30-10:00	M. Asgari	Cosmology with the Kilo Degree Survey
	10:00-10:20	A. Silvestri	Reconstructed gravity and cosmological tensions
	10:20-10:40	A. Melchiorri	Current constraints on the curvature of the Universe
	10:40-11:00	M. Sloth	The Hubble tension and new physics at the eV scale, the path to New Early Dark Energy
	11:00-11:30		Coffee Break
PL	11:30-11:50	M. Bouhmadi López	3-forms as a mean of resolving tensions
	11:50-12:10	K. Gourgouliatos	Resolving Dark Matter Tension: The impact of dynamical friction due to fuzzy dark matter on satellites with triaxial and logarithmic potentials
	12:10-12:30	K. Dimopoulos	Explaining the Hubble tension and dark energy from alpha-attractors
	12:30-12:50	G. Leon	Cosmology under the fractional calculus approach: a possible H_0 tension resolution?
	12:50-13:10	M. Quartin	Solving tensions faster with velocities
	13:10-13:30	M. Benetti	Tensions in Cosmological Probes and Quasar Cosmology
	13:30-15:30		Lunch Break

PS A	15:30-15:40	P. Asimakis	BBN constraints in models that alleviate the H0 tension
PS B		F. Anagnostopoulos	Alleviation of H0 tension in f(Q) gravity
PS A	15:40-15:50	E. Asencio	The interacting galaxy cluster "El Gordo" a massive blow to LCDM cosmology
PS B		M. Petronikolou	Alleviating H0 tension in Horndeski gravity
PS A	15:50-16:00	B. Bidenko	Testing robustness of supernovae cosmological parameter inference with Gaussian process
PS B		A. Hell	The massless limit and tension in massive gauge theories
PS A	16:00-16:10	W. Giarè	A look beyond ΛCDM theory, phenomenology and observations
PS B		B. Moser	Boltzmann solvers in the era of cosmological tensions: symbolic implementation of extensions in PyCosmo
PS A	16:10-16:20	D. Benisty	Quantifying the S8 tension with the Redshift Space Distortion data set
PS B		K. Migkas	Challenging LCDM and the isotropy of the local Universe with galaxy clusters
PS A	16:20-16:30	P. Motloch	Correlations between galaxy angular momenta and initial conditions
PS B		Z. Sakr	Can intermediate time scales modified gravity theories solve the s8 and H0 tensions?
PS A	16:30-16:40	S. Banerjee	Resolving Hubble Tension with New Gravitational Scalar Tensor Theories
PS B		C. Garcia Garcia	The last 10 billion years of cosmic structure growth
PS A	16:40-16:50	T. Papanikolaou	The induced gravitational waves of ultra-light PBH Poisson fluctuations and the Hubble tension
PS B			
PS A	16:50-17:00	L. Herold	A new constraint on Early Dark Energy using the profile likelihood
PS B		J. Wagner	As good as it gets -- solving the H0-tension Ã la Ellis & Stoeger
PS A	17:00-17:10	J. Santiago	Tensions in the deceleration parameter the effect of peculiar velocities in the time-like and null q

PS B		K. Dialektopoulos	Can we alleviate the tensions using ANN?
PS A	17:10-17:20	S. Fischbacher	Impact of redshift systematics and intrinsic alignment modelling on the S8-tension
PS B		J. Carron Duque	Assessing tensions in CMB Polarization data by extending the Minkowski Functional framework
PS A	17:20-17:30	R. Gsponer	Early dark energy in the light of large-scale structure data
PS B		M. Kalomenopoulos	Clustering effects on GWs Dark Sirens determination of Ho A simulations study
	17:30-18:30		**Coffee Break**
PL	18:30-19:00	D. Holz	Update on GW standard siren cosmology
	19:00-19:20	A. Pollo	Tensions and anomalies: how well do we understand subtle dependencies of galaxy clustering on their properties?
	19:20-19:40	M. Bruni	Interacting vacuum and tensions
	19:40-20:00	**Closure - E. Saridakis, E. Di Valentino**	

The ***Workshop on Celestial Amplitudes and Flat Space Holography*** has attracted 66 senior and young scientists in total; 22 of them have presented their current research project as workshop speakers.

The full programme was:

12th of September 2022

9.00-9.45	Registration	
9.45-10.30	Strominger Andrew	Progress in Celestial Holography
10.30-11.15	Yelleshpur Srikant Akshay	Loop corrections to Celestial OPEs
11.15-11.45	Coffee Break	
11.45-12.30	Ball Adam	Perturbatively Exact $w_{1+\infty}$ Asymptotic Symmetry of Quantum Self-Dual Gravity
12.30-13.00	Narayanan Sruthi	Soft Scalars and the Geometry of the Space of CCFTs
13.00-16.30	Lunch Break	

16.30-18.00	Discussion

13th of September 2022

9.00-10.30	Skinner David	Twistor Theory & W-algebras
10.30-11.15	Bu Wei	4d/2d correspondence in twistor space and holomorphic Wilson line
11.15-11.45	Coffee Break	
11.45-12.30	Pasterski Sabrina	Comments on Celestial Recursion
12.30-13.00	Himwich Elizabeth	w(1+infinity) Symmetry for Massive Particles
13.00-16.30	Lunch Break	
16.30-18.00	Discussion	

14th of September 2022

9.00-10.30	Casali Eduardo	Top-down approaches to celestial holography.
10.30-11.15	Gonzo Riccardo	Celestial holography on non-trivial backgrounds
11.15-11.45	Coffee Break	
11.45-12.30	Huang Yu-tin	Recent progress on S-matrix bootstrap
12.30-13.00	Crawley Erin	Black Holes in Klein Space
13.00-16.30	Lunch Break	
16.30-18.00	Discussion	

15th of September 2022

9.00-9.45	Nguyen Kevin	Charge and antipodal matching across spatial infinity
9.45-10.30	Tourkine Piotr	Scattering from production in d=4
10.30-11.15	Satishchandran Gautam	Infrared Finite Scattering Theory in Quantum Field Theory and Quantum Gravity
11.15-11.45	Coffee Break	
11.45-12.30	Takayanagi Tadashi	Wedge Holography in Flat Space and Celestial Holography
12.30-13.00	Melton Walker	Celestial Amplitudes as AdS-Witten Diagrams and the Leading Soft Algebra

13.00-16.30	Lunch Break	
16.30-17.15	Zhu Bin	Celestial Liouville Theory for Yang-Mills Amplitudes.
17.15-18.00	Guevara Alfredo	Towards Gravity from Color Symmetry

16th of September 2022

Excursion

17th of September 2022

9.00-9.45	Choi Sangmin	Holography from Singular Supertranslations on a Black Hole Horizon
9.45-10.30	Law Yuk Ting Albert	
10.30-11.15	Kapec Daniel	Soft Theorems and Infinite Dimensional Geometry
11.15	Closing	

The ***Workshop on Noncommutative and Generalized Geometry in String Theory, Gauge Theory and Related Physical Models*** has attracted 94 registered senior and young scientists in total; 47 of them have presented their current research project as workshop speakers.

The full programme was:

18th of September 2022

Registration Day

19th of September 2022

9:00	9:45	Brandenberger, Robert	Emergent Space-Time and Early Universe Cosmology from Matrix Theory
9:45	10:30	Pateloudis, Efstratios	Studies of the D0-matrix models at low temperatures
10:30	11:15	Tsuchiya, Asato	Renormalization group and cMERA
11:15	11:45	Coffee Break	
11:45	12:30	Ho, Pei-Ming	UV Physics and Hawking Radiation

12:30	12:55	Battista, Emmanuele	On the propagation across the big bounce in an open quantum FLRW cosmology
13:30	16:30	Lunch	
16:30	17:15	Balachandran, Aiyalam	Spin 1/2 From Colour and A Little More
17:15	18:00	Vitale, Patrizia	The Jacobi sigma model
18:00	18:20	Coffee Break	
18:20	19:05	Schupp, Peter	Fuzzy light cones and deformed micro-causality (in cosmology)
19:05	19:30	Froeb, Markus B.	Non-commutative coordinates from quantum gravity

20th of September 2022

9:00	9:45	Nishimura, Jun	Quantum tunneling in the real-time path integral by the Lefschetz thimble method
9:45	10:30	Hirasawa, Mitsuaki	The emergence of expanding space-time in a novel large-N limit of the Lorentzian type IIB matrix model
10:30	11:15	Tekel, Juraj	Towards removal of striped phase in matrix model description of fuzzy field theories
11:15	11:45	Coffee Break	
11:45	12:30	Vaidya, Sachindeo	Chaotic Dynamics in the SU(2) Gauge Matrix Model
12:30	12:55	Kovacik, Samuel	The Fuzzy Onion
13:30	16:30	Lunch	
16:30	17:15	Hanada, Masanori	Flux tube and chiral symmetry breaking in the partially-deconfined phase of Yang-Mills theory
17:15	18:00	Fioresi, Rita	Quantum Minkowski Superspace
18:00	18:20	Coffee Break	
18:20	19:05	Gubitosi, Giulia	Interplay between spacetime curvature, speed of light and quantum deformations of relativistic symmetries
19:05	19:30	Much, Albert	Noncommutative QFT and Curved Spacetimes
20:00	23:00	Welcome Reception	

21st of September 2022

9:00	9:45	Wu, Siye	Gauge theory, sigma models and generalised geometry

9:45	10:30	Strobl, Thomas	Angular momenta as constraints and the induced forest of ghosts
10:30	11:15	Skvortsov, Evgeny	Strong homotopy algebras in conformal field theory and higher spin gravity
11:15	11:45	Coffee Break	
11:45	12:30	Perez Martin, Carmelo	UV/IR mixing and noncommutative gauge theories defined by using the Seiberg-Witten map
12:30	12:55	Boffo, Eugenia	Spin field for the N=1 particle in the worldline
13:30	16:30	Lunch	
16:30	17:15	Lledo, Maria Antonia	A star product on N=1 chiral superspace
17:15	18:00	Tran, Tung	A twistorial higher-spin theory from the IKKT-matrix model
18:00	18:20	Coffee Break	
18:20	19:05	Van Suijlekom, Walter	Spectral truncations in noncommutative geometry
19:05	19:30	Razzaq, Junaid	N = 2 Minkowski Superspace and its Quantization

22nd of September 2022

9:00	9:45	Kowalski-Glikman, Jerzy	A few remarks on kappa
9:45	10:30	Lukierski, Jerzy	Quantum-deformed phase spaces with noncommutative coordinates and momenta
10:30	10:55	Hersent, Kilian	Quantum properties of U(1)-like gauge theory on kappa-Minkowski
10:55	11:25	Coffee Break	
11:25	12:10	Jurco, Branislav	On the category of BV-theories (aka quantum L-infinity algebras)
12:10	12:35	Kurkov, Maxim	Poisson gauge models and the Seiberg-Witten map
13:30	16:30	Lunch	
16:30	17:15	Sitarz, Andrzej	Spectral Einstein Tensor.
17:15	18:00	Perez-Sanchez, Carlos I.	A Yang-Mills(-Higgs) matrix model
18:00	18:20	Coffee Break	

18:20	19:05	Borowiec, Andrzej	Twisted differential geometry and dispersion relations in kappa-deformed cosmology
19:05	19:30	Valach, Fridrich	On supersymmetric sigma models and the AKSZ construction
20:00	23:30	Greek Night	

23rd of September 2022

9:00	9:45	Ramgoolam, Sanjaye	Partition algebras and Permutation symmetry in Matrix Quantum Mechanics
9:45	10:30	Saemann, Christian	T-Duality as a Correspondence of Higher Principal Bundles
10:30	11:15	Vysoky, Jan	Palatini variation in supergravity
11:15	11:45	Coffee Break	
11:45		Excursion	

24th of September 2022

9:00	9:45	Dimitrijevic Ciric, Marija	Quantization of braided noncommutative field theories
9:45	10:30	Pinzul, Aleksandr	Noncommutative AdS_2/CFT_1 duality
10:30	11:15	Franchino-Vinas, Sebastian	Recent results on noncommutativity and curved momentum spaces
11:15	11:45	Coffee Break	
11:45	12:30	Weber, Thomas	Principal differential calculi over projective bases
12:30	12:55	Chakraborty, Anwesha	Fingerprints of the quantum space-time in time dependent quantum mechanics: An emergent geometric phase
13:30	16:30	Lunch	
16:30	17:15	Dobrev, Vladimir	Invariant Differential Operators: An Overview
17:15	18:00	Fiore, Gaetano	General O(D)-equivariant fuzzy hyperspheres via confining potentials and energy cutoffs
18:00	18:45	Castellani, Leonardo	Noncommutative Hamiltonian for noncommutative gravity
18:45	19:05	Closure and Coffee Break	

The ***Workshop on Radiopharmaceutical Therapy (RPT) Normal Tissue Effects in the Clinic (TEC): RPT-TEC-2022***has attracted 62 registered senior and young scientists in total; 15 of them have presented their current research project as workshop speakers.

24th of September 2022

Registration

25th of September 2022

Workshop objectives and approach (D1-O)

Presenter: George Sgouros		
9:00	9:30	
Clinical Experience with small molecules (SM-C)		
Presenter/Session Chair: Scott Tagawa;		
Panel: Ana Kiess, Joseph Osborne, Joe O'Donoghue, Marta Cremonesi		
9:30	10:30	labeled with beta-emitters
10:30	**11:00**	**break/open discussion**
11:00	11:45	labeled with alpha-emitters
Presenter: Ana Kiess		
11:45	**12:00**	**break/open discussion**
Clinical Experience with peptides (P-C)		
Presenter/Session Chair: Lisa Bodei; Panel: Dewaraja Yuni, Glatting Gerhard, Pandit-Taskar Neeta, Tagawa Scott, Tworowska Izabela		
13:30	**16:30**	**light lunch, open discussions, beach**
Clinical Experience with immunoconjugates (I-C)		
Presenter/Session Chair: Neeta Pandit-Taskar;		
Panel: Albertsson Per, Bäck Tom, Bolch Wes, Jardine Vicki, Kiess Ana, Palm Stig		
16:30	17:20	labeled with beta-emitters
17:20	**17:40**	**break/open discussion**
17:40	18:30	labeled with alpha-emitters (IC-a)
Presenter: Vicki Jardine		
18:30	**19:30**	**Open Discussion, adjourn**

26th of September 2022

Approach/formalism for reconstructing organ absorbed dose (AD) from Administered Activity (AA) data consider uncertainty (D2-O)		
Presenter: Joe O'Donoghue		
9:00	9:45	
9:45	**10:15**	**break/open discussion**

Reconstructing initial organ uptake (% of AA); sub-organ localization (A/F)		
Presenter/Session Chair:Gerhard Glatting		
panel: Bernhardt Peter, Dewaraja Yuni, Glatting Gerhard, Kesner Adam, Pandit-Taskar Neeta		
10:15	11:00	Reconstructing organ pharmacokinetics (PK) (uptake/clearance half-lives)
11:00	**11:30**	**break/open discussion**
Best estimates of initial uptake, sub-organ localization, PK in kidneys (E-K)		
Presenter/Session Chair: Yuni Dewaraja		
panel: Bäck Tom, Bodei Lisa, Capala Jacek, Cremonesi Marta. Konijnenberg Mark, Strigari Lidia		
11:30	12:15	small molecules, peptides, antibodies
12:15	**12:45**	**break/open discussion**
13:00	**18:00**	**BOAT EXCURSION**
20:00		**Conference Dinner**

27th of September 2022

Best estimates of initial uptake, sub-organ localization, PK in red marrow and salivary glands (E-RS)		
Presenter/Session Chair: Rob Hobbs		
Panel: Bolch Wes, Kiess Ana, Palm Stig, Saboury Babak		
10:00	11:00	small molecules, peptides, antibodies
11:00	**11:30**	**break/open discussion**
Initial NOTA absorbed dose estimates for kidneys (N-K)*		
Presenter/Session Chair: Uribe Carlos		
panel: Jardine Vicki, O'Donoghue Joe, Pandit-Taskar Neeta, Strigari Lidia, Tagawa Scott		
11:30	12:30	small molecules, peptides
12:30	**13:00**	**break/open discussion**
13:00	13:30	antibodies
13:30	**16:30**	**light lunch, discussions, beach / lunch, discussions**
Initial NOTA absorbed dose estimates for red marrow and salivary glands (N-RS)		
Presenter/Session Chair: O'Donoghue Joe		
panel: Bäck Tom, Capala Jacek, Cremonesi Marta, Kuo Philip, Walrand Stephan, Yusufaly Tahir		
16:30	17:30	small molecules, peptides
17:30	**17:45**	**break/open discussion**
17:45	18:45	antibodies
18:45	**19:30**	**Open Discussion, adjourn**
**NOTA = Normal Organ Toxicity Avoidance*		

28th of September 2022

alpha-emitter dosimetry (a)		
Presenter/Session Chair: Sgouros George		
panel: Albertsson Per, Bäck Tom, Hobbs Robert, Howell Roger, Jardine Vicki, O'Donoghue Joe		
9:00	9:45	Daughter fate
9:45	**10:05**	**break/open discussion**
10:05	11:00	RBE, microscale, dose-rate
11:00	**11:30**	**break/open discussion**
Initial NOTA absorbed dose estimates for kidneys (N-K-a)*		
Presenter/Session Chair: Kiess Ana		
panel: Bolch Wes, Hobbs Robert, Konijnenberg Mark, Osborne Joseph, Palm Stig, Strigari Lidia		
11:30	12:30	small molecules, peptides
12:30	**13:00**	**break/open discussion**
13:00	13:30	antibodies
13:30	**16:30**	**light lunch, discussions, beach / lunch, discussions**
Initial NOTA absorbed dose estimates for red marrow and salivary glands (N-RS-a)		
Presenter/Session Chair: Bernhardt Peter		
panel: Jardine Vicki, Kesner Adam, Kiess Ana, Sneeden Eileen, Tagawa Scott, Yusufaly Tahir		
16:30	17:30	small molecules, peptides
17:30	**17:45**	**break/open discussion**
17:45	18:45	antibodies
18:45	**19:30**	**Open Discussion, meeting adjourn**
**NOTA = Normal Organ Toxicity Avoidance*		

The ***Workshop on Trends in Hardware and Software for Monitoring and Understanding Earthquake Dynamics*** has attracted 19 participants in total; 8 of them have presented their current research project as workshop speakers.

Anagnostou Marios	Update on Quantization of Large Earthquakes Driven by Asperities Strain Concentration Patterns

Aravantinos-Zafiris Nikos	Natural seismic metasurfaces: The case of the Terraced Slope
Drakatos Giorgios	Seismicity along the western part of the Hellenic trench
Kapetanidis Vasilis	Past and recent seismic city of the Ionian Islands with implications on the seismic hazard assessment
Karastathis Vassilis	Earthquake early warning systems applied in industrial zones
Kaviris George	Pre- Co- and Post-Seismic Ground Deformation Study of the Ionian Islands (W. Greece) based on continuous GNSS measurements
Sakellariou Dimitris	MARE INCOGNITUM: A multidisciplinary approach to the marine geohazards threatening the Ionian Islands
Sakkas Vassilis	Pre- Co – and Post-Seismic Ground Deformation Study of the Ionian Islands (W. Greece) based on continuous GNSS measurements
Voulgaris Nicholas	Past and recent seismic city of the Ionian Islands with implications on the seismic hazard assessment

Most of the presentations appeared online in the CORFU2022 homepage just after they were delivered: http://www.physics.ntua.gr/corfu2022/lectures.html

We sincerely thank everybody who contributed to the success of CORFU2022, in particular the young students that came a long way from many different countries. Special thanks are due to all speakers and the organizers, the conference secretary Mrs. Ifigenia Moraiti and the group of our graduate students who helped in various ways and contributed in a very significant manner to the success of the meeting. Finally, we wish to express our gratitude to our sponsors, whose financial contributions made it all possible.

They were:

1. National Technical University of Athens
2. School of Applied Mathematical and Physical Sciences (SAMPS)
3. Municipality of Corfu
4. National Observatory of Athens
5. University of Athens (NKUA)
6. Region of Ionian Islands
7. OTE: National Telecommunication Company
8. CERN
9. Deutsches Elektronen-Synchrotron (DESY)
10. Max Planck Institute for Physics
11. Max Planck Institute for Gravitational Physics (Albert Einstein Institute)
12. Sommerfeld Center for Theoretical Physics

13. National Center of Scientific Research “Demokritos”
14. Athens University
15. SISSA: Scuola Internazionale Superiore di Studi Avanzati
16. ICTP: The Abdus Salam International Centre for Theoretical Physics
17. IPPP Durham: Institute for Particle Physics Phenomenology
18. LAPP: Laboratoire d'Annecy – le - Vieux de Physique des Particules
19. LAPTH: Laboratoire d'Annecy – le - Vieux de Physique Theorique
20. LPTENS: Laboratoire de physique théorique ENS
21. Universidad Autonoma de Madrid
22. Instituto de Fisica Teorica UAM/CSIC
23. Uppsala University
24. University of Warsaw
25. University of Granada
26. Technical University of Lisbon
27. IFIC Valencia
28. Oxford University
29. Universidad Autonoma de Madrid
30. Scuola Normale Superiore, Pisa
31. NCSR "Demokritos"
32. ITP Heidelberg
33. CPHT, Ecole Polytechnique
34. Queen Mary University of London
35. Rudjer Bošković Institute, Zagreb
36. Swansea University
37. Turin University
38. Ionian University
39. Ephorate of Antiquities of Corfu

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