

FP6 MRTN-CT-035863
King's College-London node

Nick E. Mavromatos
Scientist in Charge
&
Anna Kostouki
ESR

Structure of Node

- **Scientist in charge:** **Prof. Nick E. Mavromatos, FInstP** Theoretical (Astro)Particle Physics & Cosmology (dark sector of Universe), Quantum Gravity & String theory, Dark sector of Universe.
- **Scientific Deputy:** **Prof. Sarben Sakar , FInstP** Quantum Field Theory, Quantum Decoherence (applications in particle physics & early Universe), **dark sector of the Universe.**
- **Staff:** **Dr. Mairi Sakellariadou (Reader)**
Astrophysics & Cosmology, Cosmic (Super)Strings, Loop Quantum Cosmology (-theory & phenomenology (astrophysical)), Brane models, Dark sector of the Universe
- **ESR (supervisor N.E.M.) : Ms Anna Kostouki**
string-inspired inflation, formal studies in (world-sheet) renormalization group in string cosmology.

Research in: Early Universe (inflation), Fundamental Symmetries (CPT, Lorentz), Dark Sector : Models & Astro-particle Phenomenology

Research within RTN

- **N.E.M. + ESR** : (i) towards exact cosmological solutions in string theory, including tachyon-dilaton Inflation, using novel renormalization group method developed by N.E.M. & J.Alexandre (KCL).
(ii) Detailed study of exit from inflation & reheating.

Collaboration KCL-CERN (Ellis) ,

ESR PUBLICATION : J. Alexandre, N.E.M. & A.K., New J.Phys.10:073029,2008 & in preparation

- **N.E.M, Sarkar** : scalar fields in (supercritical) String Cosmologies (dilaton etc.), models of non-extensive particle statistics in string cosmology and dark matter/dark energy constraints of supersymmetric models at LHC.

Collaboration KCL-Athens (Lahanas)

- **N.E.M. + Sakellariadou** : cosmic defects (point-like, cosmic superstrings) in string theory models and the issue of dark matter – modifications of gravity,

- **Sakellariadou**: string thermodynamics, Loop Quantum Cosmology, Brane models , Supersymmetric GUTS

Collaboration KCL-APC/Paris (Steer)

- **N.E.M. + Sarkar** : Neutrinos, space-time foam and dark energy: quantum-gravity decoherence - formalism & tests (terrestrial & astrophysical), Fock space quantization of flavour space and non-perturbative vacuum energy contributions,

Collaboration KCL-CERN (Sakharov)

- **N.E.M** : High Energy Astrophysics Tests of Lorentz Violation – photons – high-energy neutrinos

Collaboration KCL-CERN (Ellis, Sakharov), NTUA-Athens