

*IMPLEMENTATION and TESTING  
RANDOM NUMBER GENERATORS*

*MIXMAX NETWORK MEETING  
3 July 2015  
and  
SUMMER RESEARCH WORKSHOP  
6 July - 17 July  
CERN, Geneva*

- 1. Demokritos National Centre for Scientific Research, Greece*
- 2. PH-SFT CERN, Switzerland*
- 3. Nanjing University, China*
- 4. Niels Bohr Institute, Copenhagen University, Denmark*
- 5. A. I. Alikhanyan National Science Laboratory, Armenia*

**Programme, July 3**

Morning section chair G.Savvidy

9:00-9:05 J.Harvey. Welcome.

9:05-9:40 L.Moneta. Random number generators in ROOT.

9:40-10:20 K.Savvidy. Implementation of the MIXMAX random number generator.

10:20-10:40 Coffe Break

10:40-11:15 G.Karyan. Statistical tests for MIXMAX RNG.

11:15-11:50 S.Konitopoulos. The Serial Correlation and the Spectral Tests

11:50-12:30 F.James. Overview of RNG's.

12:30-14:00 Lanch

Evening section chair L.Moneta

14:00-14:45 J.Apostolakis. Use cases and requirements from Detector Simulation

14:45-15:30 A.Görlich. Monte-Carlo Simulations in Quantum Gravity and RNG's

15:30-16:00 G.Savvidy. RNG based on Anosov-Kolmogorov systems:  
the entropy, periodic trajectories, Galois field and RNG's

16:00-17:00 Round Table Discussion

## **SUMMER RESEARCH WORKSHOP, July 6 - July 10**

- July 6. Random number generators in ROOT.
- July 7. Implementation of the MIXMAX random number generator.
- July 8. Kolmogorov-Smirnov statistical tests in various dimensions.
- July 9. The Serial Correlation and the Spectral Tests
- July 10. Comparison of statistical properties of random number generators.

## **SUMMER RESEARCH WORKSHOP, July 13 - July 17**

- July 13. Use cases and requirements from Detector Simulation
- July 14. Monte-Carlo Simulations in Quantum Field Theory and Gravity
- July 15. Anosov and Kolmogorov dynamical systems
- July 16. The entropy of the Anosov C-systems.
- July 17. Periodic trajectories of C-systems and RNG's