

# Program of the PhD school and workshop “Recent Advances in Fundamental Physics”

## PhD school

### Saturday, September 24, Room 006, Bd.1

9:50-10:00	Opening of the school
10:00-11:10	L. Funcke, “Computing Topological Field Theories”
11:10-11:40	<i>Coffee</i>
11:40-12:50	A. Kobakhidze, “The Standard Model of particle physics”
12:50-14:10	Lunch
14:10-15:20	G. Dvali, “Physics Beyond the Standard Model”
15:20-15:50	<i>Coffee</i>
15:50-17:00	Z. Berezhiani, “Selected topics in Astroparticle Physics”
17:00-18:10	Discussions, student’s poster session

### Sunday, September 25, Room 006, Bd.1

10:00-11:10	L. Funcke, “Computing Topological Field Theories”
11:10-11:40	<i>Coffee</i>
11:40-12:50	A. Kobakhidze, “The Standard Model of particle physics”
12:50-14:10	Lunch
14:10-15:20	G. Dvali, “Physics Beyond the Standard Model”
15:20-15:50	<i>Coffee</i>
15:50-17:00	Z. Berezhiani, “Selected topics in Astroparticle Physics”
17:00-18:00	Discussions
18:00-19:00	Popular lecture Ulf-G. Meißner, “Molecular structures in hadron and nuclear physics”

## Monday, September 26, Conference room in hotel “Orion”

- 10:00-11:10 L. Funcke, “Computing Topological Field Theories”  
11:10-11:40 *Coffee*  
11:40-12:50 A. Kobakhidze, “The Standard Model of particle physics”  
12:50-14:10 Lunch  
14:10-15:20 G. Dvali, “Physics Beyond the Standard Model”  
15:20-15:50 *Coffee*  
15:50-17:00 A. Boyarsky, “Dark matter: cold, non-cold, and sterile neutrinos”

### **Students’ talks:**

- 17:00-17:15 L. Razmadze, “Localized states in engineered carbon nanoribbons”  
17:15-17:30 T. Supatashvili, “Evidences for a group structure of Wilson loops”  
17:30-17:45 A. Gurchumelia, “Split octonionic field Lagrangian”  
17:45-18:00 E. Khastyan, “Euler top as a one-dimensional system and supersymmetrization”  
18:00-18:15 H. Ghumaryan, “Comparison of identified hadron yields and event shape variables extracted from Pythia6 & Pythia8 Monte Carlo event generators”  
18:15-18:30 N. Nasibova, “Isospin symmetry of  $\omega$  meson in the AdS/QCD soft-wall model at finite temperature”  
18:30 Closing of the school  
19:00-20:30 RESEPTION SCHOOL & WORKSHOP

# Workshop

**Tuesday, September 27, Javakhishvili auditorium (room 107), Bd.1**

- 9:50-10:00      Opening of the workshop
- Convener: Akaki Rusetsky
- 10:00-10:35      Ulf-G. Meißner, “Axion-baryon interactions”
- 10:35-11:10      Jambul Gegelia, “On the definition of local spatial densities  
                    in light hadrons”
- 11:10-11:40      *Coffee*
- Convener: Lena Funke
- 11:40-12:15      Benedetta Belfatto, “Fritzsch-like textures from flavor symmetry:  
                    precision tests”
- 12:15-12:50      Zurab Tavartkiladze, “SM Extension with Gauged Flavor  $U(1)$ ”
- 12:50-13:10      Masud Chaichian, “Reciprocal of CPT theorem: a short  
                    communication”
- 13:10-14:50      *Lunch*
- Convener: Archil Kobakhidze
- 14:50-15:25      Mikhail Shaposhnikov, “Quantum field theories without infinities  
                    and naturalness”
- 15:25-16:10      Discussion: BSM / Particle Physics
- 16:10-16:40      *Coffee*
- 16:40-18:00      Discussion continued

**Wednesday, September 28, Javakhishvili auditorium (room 107), Bd.1**

- Convener: Merab Gogberashvili
- 10:00-10:35 Fawad Hassan, "Theories of multiple spin-2 fields as ghost-free multimetric gravity"
- 10:35-11:10 Anca Tureanu, "Intrinsic coherence and particle oscillations"
- 11:10-11:40 *Coffee*
- Convener: Masud Chaichian
- 11:40-12:15 George Lavrelashvili, "Scalar lumps with one and two horizons"
- 12:15-12:50 Alexander Vilenkin, "Cosmic strings and black holes"
- 12:50-14:50 *Lunch*
- Convener: Alexander Vilenkin
- 14:50-15:25 Gia Dvali, "*S*-matrix and de Sitter"
- 15:25-16:10 Discussion: BSM / Cosmology
- 16:10-16:40 *Coffee*
- 16:40-18:00 Discussion continued

## Thursday, September 29, TSU Event Hall, Bd.1

- Convener: Ulf-G. Meißner
- 10:00-10:35 Tamaz Kereselidze, “Non-standard mechanism of the hydrogen formation in the early Universe”
- 10:35-11:10 Iver Brevik, “Axion electrodynamics”
- 11:10-11:40 *Coffee*
- Convener: Iver Brevik
- 11:40-12:15 Masud Chaichian, “Gamma-Ray Bursts Delay and Lorentz Invariance Violation”
- 12:15-12:50 Merab Gogberashvili, “LIGO signals from the Mirror World”
- 12:50 - 14:50 *Lunch*
- Convener: Anca Tureanu
- 14:50 - 15:25 Zurab Berezhiani, “On the origin of cosmic antimatter”
- 15:25 - 16:10 Discussion: BSM / Astroparticle Physics
- 16:10 - 16:40 *Coffee*
- 16:40 - 18:00 Discussion continued
- 19:00 - 23:00 SOCIAL EVENT

## **Friday, September 30, Javakhishvili auditorium (room 107), Bd.1**

- Convener: Fawad Hassan
- 10:00-10:35 Michael Maziashvili, "CNB assisted dark energy"
- 10:35-11:10 Alexey Boyarsky, "Chiral anomaly and cosmic magnetism"
- 11:10-11:40 *Coffee*
- Convener: Mikhail Shaposhnikov
- 11:40-12:15 Archil Kobakhidze, "Quantum Gravity and CP-violation"
- 12:15-12:50 Lena Funcke, "Small neutrino masses from chiral gravitational anomaly"
- 12:50-14:30 Lunch
- Convener: Alexey Boyarsky
- 14:30-15:05 Gia Dvali, "Quantum Black Holes"
- 15:05-15:50 Discussion: Black holes and their manifestations
- 15:50-16:20 Coffee
- 16:20-17:40 Discussion continued
- 18:00-19:00 Physics Colloquium: Alexander Vilenkin  
"The Universe beyond the Horizon"

## **Saturday, October 1, Javakhishvili auditorium (room 107), Bd.1**

- 10:00-12:00 Closing discussion  
Closing of the workshop