

# **The Modern Physics of Compact Stars and Relativistic Gravity 2017**

**Monday, 18 September 2017 - Friday, 22 September 2017**

**Yerevan, Armenia**

## **Programme**

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# Monday 18 September 2017

**Registration** (08:00-09:30)

**Address of the administration of the Yerevan State University** (09:30-09:40)

**Turbulence in Core-Collapse Supernovae** (09:40-10:20)

- Presenter: Prof. ABDIKAMALOV, Ernazar (Nazarbayev University)

**An empirical nuclear Equation of State constrained by nuclear observables**

(10:20-11:00)

- Presenter: CHATTERJEE, Debarati (LPC/ENSICAEN)

**Coffee break** (11:00-11:20)

**Hadron-Quark Transition in High Density Nuclear Matter** (11:20-12:00)

- Presenter: SARGSIAN, Misak

**Accelerating cosmology in modified gravity and neutron stars** (12:00-12:40)

- Presenter: Prof. ODENTSOV, Sergey (ICREA and ICE(CSIC-IEEC), Barcelona)

**Lunch break** (12:40-14:20)

**Charged  $\rho$ -meson condensate in neutron stars within RMF models** (14:20-14:50)

- Presenter: Mr. MASLOV, Konstantin (MEPhI)

**Supporting the existence of the QCD critical point by compact star observations**

(14:50-15:20)

- Presenter: Dr. ALVAREZ CASTILLO, David Edwin (JINR)

**Transport coefficients of two-flavor quark matter from the Kubo formalism** (15:20-15:50)

- **Presenter: Ms. HARUTYUNYAN, Arus (ITP, Goethe University, Frankfurt am Main )**

**Coffee Break (15:50-16:10)**

**A NEW APPROACH TO STUDY OF QUANTUM VACUUM - DARK ENERGY (16:10-16:40)**

- **Presenter: Dr. GEVORKYAN, Ashot (Institute for Informatics and Automation Problems,  
NAS of Armenia, Institute of Chemical Physics, NAS of Armenia)**

**Anisotropic Self-gravitating Objects (16:40-17:10)**

- **Presenter: STEPANIAN, Arman (Yerevan Physics Institute)**

## Tuesday 19 September 2017

### Cooling of neutron stars within "nuclear medium cooling scenario" (09:00-09:40)

- Presenter: VOSKRESENSKY, Dmitry (National Research Nuclear University (NRNU MEPhI))

### Quark-Nuclear Hybrid Star EoS with Excluded Volume Effects (09:40-10:20)

- Presenter: BLASCHKE, David (University of Wroclaw)

### Coffee Break (10:20-10:40)

### Hot neutron stars with hyperons (10:40-11:20)

- Presenter: Dr. OERTEL, Micaela (Meudon Observatory)

### $f(R)$ relativistic gravity and inflationary models based on it (11:20-12:00)

- Presenter: Prof. STAROBINSKY, Alexei (Landau Institute of RAS)

### Lunch Break (12:00-13:40)

### Calculation of symmetry energy using Argonne family potentials with three nucleon interaction (13:40-14:10)

- Presenter: Ms. ASADI AGHBOLAGHI, Zahra (Zanjan University)

### Low-Energy Nuclear Interaction Chamber for Experiments in Nuclear Astrophysics (14:10-14:40)

- Presenter: Dr. MARGARYAN, Amur (Alikhanyan National Science Laboratory)

### Null congruences crossing generic shells (14:40-15:10)

- Presenter: Mr. DEMIRCHIAN, Hovhannes (Byurakan Astrophysical Observatory)

### Coffee break (15:10-15:40)

**Is it possible to determine whether the EG 50 is a white or strange dwarf by the nature of its cooling? (15:40-16:10)**

- Presenter: HAJYAN, Gevorg (Yerevan State University)

**Realistic compactification models in Einstein-Gauss-Bonnet gravity (16:10-16:40)**

- Presenter: Dr. PAVLUCHENKO, Sergey (Universidade Federal do Maranhao, Sao Luis, Brazil)

**Informal discussion on perspectives in compact stars (16:40-17:30)**

## **Wednesday 20 September 2017**

### **Induced fermionic current by a magnetic tube in the cosmic spacetime (09:00-09:40)**

- Presenter: Prof. BEZERRA DE MELLO, Eugenio (Universidade Federal da Paraíba)

### **MAGIC - MATter phase transitions at high baryon density, Gravitational waves and relativistic neutron star - and Ion- Collisions (09:40-10:20)**

- Presenter: Prof. STOECKER, Horst (GSI)

### **Coffee Break (10:20-10:40)**

### **Astrophysical and Cosmological Tests of Gravity (10:40-11:20)**

- Presenter: Prof. POGOSIAN, Levon (Simon Fraser University)

### **Modification of Compact Star Observables due to Quantum Fluctuations (11:20-12:00)**

- Presenter: Dr. BARNAFOLDI, Gergely Gabor (Wigner RCP Hungarian Academy of Sciences (HU))

### **Lunch Break (12:00-13:40)**

### **Excursion (13:40-18:40)**

### **Social dinner (19:00-21:00)**

## **Thursday 21 September 2017**

### **Cosmological scenarios in Horndeski theory (09:00-09:40)**

- Presenter: Prof. SUSHKOV, Sergey (Kazan Federal University)

### **Equations of state of relativistic mean-field models with different parametrisations of density-dependend couplings (09:40-10:20)**

- Presenter: Dr. TYPEL, Stefan (Technische Universität Darmstadt)

### **Coffee Break (10:20-10:40)**

### **Electromagnetic vacuum densities induced by a cosmic string in de Sitter space (10:40-11:20)**

- Presenter: Dr. MANUKYAN, Vardan (Shirak State University)

### **Some theoretical aspects of magnetars (11:20-12:00)**

- Presenter: Dr. SINHA, Monika (Indian Institute of Technology Jodhpur)

### **Lunch Break (12:00-13:40)**

### **Spectral Analysis of the Vela Pulsar and its Neutrino Cooling Rate (13:40-14:10)**

- Presenter: OFENGEIM, Dmitry (Ioffe Institute)

### **Cooling of massive neutron stars (14:10-14:40)**

- Presenter: Dr. GRIGORIAN, Hovik

### **Stability and mass defect of hot strange dwarfs (14:40-15:10)**

- Presenter: HAJYAN, Gevorg (Yerevan State University)

### **Coffee break (15:10-15:30)**



**Bayesian Analysis of Hybrid EoS Models Using Mass and Radius Data from Compact Star Observations (15:30-16:00)**

- Presenter: AYRIYAN, Alexander (JINR)

**Scalar field dark energy reconstruction from the SNe Ia data (16:00-16:30)**

- Presenter: Dr. PILOYAN, Arpine

**Informal discussion on gravity problems and cosmology (16:30-17:30)**

## **Friday 22 September 2017**

### **Pulsar glitch dynamics in general relativity (09:00-09:40)**

- Presenter: NOVAK, Jerome (CNRS - Observatoire de Paris)

### **Magnetic field generation in hybrid neutron stars (09:40-10:20)**

- Presenter: Prof. SEDRAKIAN, David (Yerevan State University)

### **Coffee break (10:20-10:40)**

### **“Trapped ghost” wormholes and regular black holes. The stability problem.**

**(10:40-11:20)**

- Presenter: Prof. BRONNIKOV, Kirill (Center of Grav. and Fund. Metrology, VNIIMS,  
Ozyornaya 46, Moscow 119361, Russia;)

### **Impact of the MIT bag model parameters values on the maximum mass of neutron star with a quark core (11:20-12:00)**

- Presenter: ALAVERDYAN, Grigor (Yerevan State University)

### **Closing of the conference (12:00-12:20)**

### **Excursion to an Armenian brandy factory in Yerevan (13:00-15:00)**