

Helmholtz International Summer School  
**“Nuclear Theory and Astrophysical Applications”**  
 Dubna, Russia, July 21 – August 1, 2014

## PROGRAM

	July 22 (Tuesday)	July 23 (Wednesday)	July 24 (Thursday)	July 25 (Friday)		July 28 (Monday)	July 29 (Tuesday)	July 30 (Wednesday)	July 31 (Thursday)
9:30 – 10:00	<b>Opening</b>								
10:00 – 10:45	Nguyen Van Giai	H. Wolter	I. Vidaña	D. Blaschke		G. Röpke	T. Szücs	I. Borzov	T. Fischer
10:45 – 11:15	Coffee break								
11:15 – 12:00	Nguyen Van Giai	H. Wolter	I. Vidaña	D. Blaschke		G. Röpke	T. Szücs	I. Borzov	T. Fischer
12:00 – 12:45	S. Typel	T. Lähde	J. Margueron	E. Eremenko		F. Šimkovic	F. Röpke	T. Rodríguez	T. Fischer/ T. Rodríguez
12:45 – 15:00	Lunch break								
15:00 – 15:45	S. Typel	T. Lähde	J. Margueron	<b>Excursion to NICA</b>		F. Šimkovic	F. Röpke	T. Rodríguez	A. Dzhioev
15:45 – 16:30	G. Stratan	E. Kolomeitsev	E. Kolomeitsev/ I. Vadaña			D. Blaschke/ T. Lähde	G. Röpke/ F. Šimkovic	T. Szücs/ F. Röpke	A. Dzhioev
16:30 – 17:00	Coffee break					Coffee break			<b>Farewell</b>
17:00 – 18:00	G. Stratan	E. Kolomeitsev	H. Wolter/ J. Margueron		PC1	PC2	PC3		
18:00 – 19:00	<b>Welcome</b>	Nguyen Van Giai/S. Typel							

Lectures (45 min + 45 min) are marked with blue, seminars (60 min) are marked with green, PC – participant contributions (15-20 min each)

**Saturday, July 26:** Excursion to Uglich  
 8:00 – departure of bus from the Hotel “Dubna”

Picnic in Ratmino: after excursion, approx. 18:00 – 21:00 (bring your favored music instruments)  
 17:30 – departure of buses from the Hotel “Dubna”

## LIST OF LECTURES:

1. Prof. Nguyen Van Giai (Orsay): The inner crust of neutron star: a mean-field description
2. Dr. Stefan Typel (Darmstadt): Equation of state in a generalized relativistic density functional approach
3. Prof. Gheorghe Stratan (Dubna): The role and place of Galileo in the first scientific revolution
4. Prof. Hermann Wolter (München): The nuclear symmetry energy from heavy-ion collisions
5. Dr. Timo Lähde (Jülich): Ab initio calculation of the Hoyle state and the viability of life in the Universe
6. Dr. Evgeni Kolomeitsev (Banská Bystrica): Fermi-liquid approach for superfluid systems, neutrino processes in neutron stars
7. Dr. Isaac Vidaña (Coimbra): Hyperons, hypernuclei and neutron stars
8. Dr. Jérôme Margueron (Lyon): Superfluidity in the crust of neutron stars
9. Prof. David Blaschke (Dubna/Wrocław): Quark matter in compact stars
10. Dr. Elena Eremenko (Moscow): Activities of the Helmholtz association
11. Dr. Uwe Meyer (Woltersdorf): EU-Russia S&T Cooperation under EU-FP 7: findings and recommendations and topics of horizon 2020
12. Prof. Gerd Röpke (Rostock): Correlations, clusters, and condensates in nuclei and nuclear matter
13. Prof. Fedor Šimkovic (Dubna/Bratislava): Neutrinoless double beta-decay
14. Dr. Tamás Szücs (Dresden): Underground nuclear astrophysics
15. Prof. Friedrich Röpke (Würzburg): Type Ia supernovae – modeling nuclear combustion processes
16. Prof. Ivan Borzov (Obninsk): Beta-decay rates and production of heavy elements via r-process
17. Dr. Tomás Rodríguez (Madrid/Darmstadt): Energy density functional in nuclear structure, fundamental physics and astrophysics
18. Dr. Tobias Fischer (Wrocław): Role of microphysics in core collapse supernova simulations
19. Dr. Alan Dzhioev (Dubna): Hot nuclei and weak-interaction mediated reactions in core-collapse supernova

## PARTICIPANT CONTRIBUTIONS

### PC1: 28 July, Monday

Anna Bezbakh (Dubna): Level densities and shell corrections of superheavy nuclei

Mark Kaltenborn (Knoxville): Exotic nuclear shapes in the pasta phase of matter in neutron stars

Michał Naskręć (Wrocław): A model for particle freeze-out in the HIC

### PC2: 29 July, Tuesday

Andrej Babic (Bratislava): On the detection of solar neutrinos and reactor antineutrinos via scattering on atomic electrons

Sebastian Ohlmann (Würzburg): The white dwarf's carbon fraction as secondary parameter of type Ia supernovae

Kai Marquardt (Würzburg): Detonation of O-Ne-white dwarfs

### PC3: 30 July, Wednesday

Rastislav Dvornicky (Dubna): Unique forbidden beta decays

Ani Vardanyan (Byurakan): Chemical and kinematical properties of solar neighborhood stars

Knarik Khachatryan (Byurakan): Kinematics of exoplanet hosting stars