



# **NewMaRE: New Materials and Renewable Energy**

**Tbilisi (Georgia), 19-23 September 2012**

**Hosted by:**

**Professor Archil Prangishvili<sup>①</sup>**

**Chaired by:**

**Professor Alexey Kavokin<sup>②</sup>**

*Co-sponsored by*





## PRELIMINARY PROGRAMME

### Wednesday 19 September 2012

**14.00-17.30**

**Afternoon Session**

14.00-14.10

**Welcome by Convenor**

**Archil Prangishvili** (Georgian Technical University, Tbilisi, Georgia)

14.10-14.30

**Presentation by the Chair of the School**

**Alexey Kavokin** (University of Southampton, UK, Saint-Petersburg State University, SOLAB, Russia)

14.30-15.00

**"2D Array of Cold-Electron Bolometers for High-Performance Cosmology Experiments"**

**Leonid Kuzmin** (Chalmers University of Technology, Gothenburg, Sweden)

15.00-15.30

**"Manipulating polariton condensates on a chip"**

**Pavlos Savvidis** (University of Crete, FORTH, Greece)

15.30-16.00

*Coffee / tea break*

16.00-16.30

**"Single photon sources on silicon"**

**Marco Abbarchi** (École Normale Supérieure, Paris, France)

16.30-17.00

**"New Radiation-resistant materials and photovoltaics for Space"**

**Kekelidze Nodar** (Tbilisi State University, Tbilisi, Georgia)

17.00-17.30

**"The particle mass puzzle and the recent LHC results. - Practical applications of the LHC detectors"**

**Rinaldo Santonico** (University of Rome Tor Vergata, Rome, Italy)

*Evening excursion round Tbilisi*



## Thursday 20 September 2012

- 09.00-12.30 Morning Session**
- 09.00-09.30 **"Binary polariton quantum fluids, fundamental properties and devices"**  
**Emiliano Cancellieri** (Université Pierre et Marie Curie-Paris 6, École Normale Supérieure et CNRS, Paris, France)
- 09.30-10.00 **"Bosonic Terahertz Lasers Based on GaN"**  
**Alexey Kavokin** (University of Southampton, UK, Saint-Petersburg State University, SOLAB, Russia)
- 10.00-10.30 **"The law of parsimony in semiconductor microcavities"**  
**Pavlos Lagoudakis** (University of Southampton, UK)
- 10.30-11.00 *Coffee / Tea Break*
- 11.00-11.30 **"Concepts of Graphene Terahertz and Infrared Devices"**  
**Victor Ryzhii** (Tohoku University, Sendai, Japan)
- 11.30-12.00 **"t.b.c."**  
**Archil Prangishvili** (Georgian Technical University, Tbilisi, Georgia)
- 12.00-12.30 **"Magnetic navigation of birds and other animals: a challenge for physicists"**  
**Kirill Kavokin** (Ioffe Physical-Technical Institute, SOLAB, Russia)
- 12.30-14.00 *Lunch*
- 14.00-16.00 Afternoon Session:**
- 14.00-14.30 **"New one dimensional nanomaterials grown in hydrazine vapor"**  
**Jishiasvili David** (Georgian Technical University, Tbilisi, Georgia)
- 14.30-15.00 **"Spontaneous emission enhancement in hyperbolic media"**  
**Ivan Iorsh** (University of Durham, UK)
- 15.00-15.30 **"Application of solar energy systems in Georgia by example of high mountainous region of Tusheti"**  
**Kobakhidze Kote** (Georgian Technical University, Tbilisi, Georgia)
- 15.30-16.00 *Coffee / tea break*

*Excursion to the ancient capital of Georgia, beautiful city of **Mtskheta**;  
wine testing*

*Dinner – famous national food by the river banks*



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## Friday 21 September 2012

### 09.00-12.30

#### **Morning Session**

09.00-09.30

**"Scientific and technical aspects of Wind Energy and level of international development"**

**Zedgenidze Archil** (Georgian Technical University, Tbilisi, Georgia)

09.30-10.00

**"Wind Energy Regulations and place in energy sector"**

**Gelovani Manana** (Georgian Technical University, Tbilisi, Georgia)

10.00-10.30

**"Thermodynamic model of the macroscopically ordered exciton state"**

**Sergey Andreev** (University of Montpellier 2, CNRS, France)

10.30-11.00

*Coffee / Tea Break*

11.00-11.30

**"Zero-energy guided modes, vortices and excitons in graphene"**

**Mikhail Portnoi** (University of Exeter, UK)

11.30-12.00

**"Co-Production of ethanol, hydrogen and methane by fermentation of herbaceous cellulosic wastes by anaerobic cellulolytic and saccharolytic thermophilic Clostridia"**

**Tamara Dudauri** (Georgian Technical University, Tbilisi, Georgia)

12.00-12.30

**"Study of the Ga-As solar cell temperatures for solar radiation degree concentrator with different method of solar cell cooling system"**

**Irakli Avaliani** (Georgian Technical University, Tbilisi, Georgia)

12.30-14.00

*Lunch*

### 14.00-16.00

#### **Afternoon Session:**

14.00-14.30

**"Photovoltaic installations with sunlight concentrators"**

**Goderdzishvili Gela** (Georgian Technical University, Tbilisi, Georgia)

14.30-15.00

**"Spinromechanics of Magnetic Shuttle Structures"**

**Robert Shekhter** (University of Gothenburg, Sweden)

15.00-15.30

**"The fine structure of excitons and trions in trigonal quantum dots"**

**Mikhail Durnev** (S-Petersburg State University, SOLAB, Russia)

15.30-16.00

*Coffee / tea break*

### 16.00

#### **Poster Session**

**19.30** *School **Banquet**, National Georgian Cuisine, wine testing, dancing hall*



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## Saturday 22 September 2012

**Full-day excursion: Kaheti**, the capital of Georgian wine - wine factory, with wine degustation, vintage (grape picking), including Signagi, medieval fortified town, also called "love city"

## Sunday 23 September 2012

**Departure of the participants**