

**Workshop Program** (from 25/08/2016)

**7<sup>th</sup> „Georgian – German School and Workshop in Basic Science“  
GGSWBS'16**

**August 28 – September 2, Tbilisi, Georgia**

**– Spin Physics, Symmetries and Applications –**

**Topics:**

1. Symmetries in Subatomic Physics (T- and CP- Violations)
  2. Electric Dipole Moment (EDM) Searches (e.g. JEDI project)
  3. Neutrino Physics (e.g. JUNO project)
  4. Standard Model and Beyond (Theory, HEP Experiments)
  5. Engineering Sciences (Simulation, Instrumentation, Electronics)
  6. Applications (e.g. Medical Imaging)
- **Launching a first SMART|EDM\_Lab**
  - Satellite JEDI collaboration meeting

**Venue and general schedule of the meeting:**

**Sun, August 28:** Arrival (*early morning*); Tbilisi Tour (14:00 – 18:30)  
Registration & Welcome Reception (19:30 – 22:00)  
(**MUZA**, 'Kus Tba' road, Tbilisi)

**Mon, Tue (August 29, 30):** Ivane Javakhishvili Tbilisi State University (**TSU**)  
(Chavchavadze ave. 1, Main building)

**Wed, August 31:** Social program (9:30 – 21:00)  
(*Excursion: Day trip to Mtskheta-Mukhrani-Chardakhi*)

**Thu (September 1):** Tbilisi State University (**TSU**)  
(Chavchavadze ave. 1, Main building)

**Fri, September 2:** Departure (*after midnight*)

[August 29, Monday \(Workshop, TSU\) 10<sup>00</sup> – 19<sup>00</sup>](#)

## Existing and Future Cooperation

### **Plenary opening session** (foyer of acting hall) (10:00 – 11:00)

- Welcome/Opening Address**
- **Darejan Tvaltvadze**, Acting Rector of TSU
  - **Merab Eliashvili**, Vice Rector of TSU
  - **Alexander Jejelava**, Minister of Education and Science of Georgia
  - **Representative** of German Embassy in Tbilisi
  - **Marine Chitashvili**, Director General of SRNSF
  - **Sebastian M. Schmidt**, FZ-Jülich Board of Directors
  - **Hans Ströher**, Director of IKP/FZJ: „*Scope of the Workshop*“

**Ceremony session for sign.:** Implementation agreement between Georgia and Jülich on: foundation of a first **SMART|EDM\_Lab** at TSU

### **Plenary session 1** (acting hall): Convener – **Sebastian M. Schmidt** (11:00 – 13:30)

- **Hans Ströher (FZJ)** – *Precision physics (30')*
- **Achim Stahl (RWTH Aachen)** – *Neutrino physics (JUNO project) (30')*

**12:00 – 12:30** Coffee break (+ conference photo)

- **Akaki Rusetsky (Bonn)** – *Challenges of the Standard Model (30')*
- **Paolo Lenisa (Ferrara)** – *New ideas for HEP experiments (30')*

**13:30 – 15:00** Lunch break

### **Plenary session 2** (auditorium 7): Convener – **Hans Ströher** (15:00 – 19:00)

- **Thomas Kress (RWTH Aachen)** – *ATLAS/CMS projects (30')*
- **Yuri Valdau (FZJ/Bonn)** – *TRIC Experiment: status & perspectives (30')*
- **Stefan van Waasen (FZJ)** – *Readout electronics (30')*

**16:30 – 16:50** Coffee break

## Topical Lectures

- **Detlev Gotta (FZJ)** – *From fundamental physics to applications (40')*
- **Erhard Steffens (Erlangen)** – *Polarization as a tool (40')*
- **Dieter Eversheim (Bonn)** – *Electronics: analog vs digital (40')*

**19<sup>30</sup> – 21<sup>30</sup> Social program** (Welcome dinner, „Tsiskvili“ restaurant)

August 30, Tuesday (Workshop, TSU) 9<sup>00</sup> – 18<sup>30</sup>

## Existing and Future Cooperation

### Plenary session 3 (auditorium 7): Convener – Erhard Steffens (09:00 – 13:00)

- Jon Shah (FZJ) – *Medical imaging (MR-PET technique) (30')*
- Bernd Neumaier (FZJ) – *Radiotracers for diagnostic applications with PET (30')*
- Manuel Dieterle (PSI) – *Application of hadron beam: proton therapy at PSI (30')*
- Mei Bai (FZJ) – *COSY and Beyond (30')*

11:00 – 11:30 Coffee break

- Livia Ludhova (FZJ) – *Neutrino Physics with Scintillator-Based Detectors (30')*
- Satoshi Mihara (J-PARC) – *Muon particle physics program in Japan (30')*
- Ghaleb Natour (FZJ) – *Detector construction/design (examples) (30')*

13:00 – 14:30 Lunch break

### Plenary session 4 (auditorium 7): Convener – Mikheil Nioradze (14:30 – 16:30)

- Archil Durglishvili (HEPI TSU) – *Georgian contribution to ATLAS exp. (30')*
- Vahtang Gogohia (RMKI, Budapest) – *Two faces of QCD theory (30')*
- Jambul Gegelia (FZJ/TSU) – *Issues of Hadronic EFT (30')*
- Revaz Shanidze (TSU) – *Nuclear medicine physics in Georgia (30')*

16:30 – 16:50 Coffee break

## Electric Dipole Moment Searches

### Plenary session 5 (auditorium 7): Convener – Mei Bai (16:50 – 18:30)

- Andreas Lehrach (FZJ) – *Highlights from COSY (JEDI project) (30')*
- Ed Stephenosn (Indiana) – *Feasibility demonstrations for the EDM experiment (30')*
- Yuri Senichev (FZJ) – *Option for dEDM experiment at COSY (30')*

19<sup>00</sup> – 20<sup>00</sup> Reception at TSU (snack & bevarage)

20<sup>00</sup> – 21<sup>00</sup> Social program: Children dancing ensemble „ALGETI“(acting hall TSU)

September 1, Thursday (Workshop, TSU) 9<sup>30</sup> – 18<sup>30</sup>

**JEDI collaboration meeting**  
Seperate agenda (next page) !

**Plenary session 6 (auditorium 7): Convener – Andreas Lehrach (09:30 – 13:00)**

**11:00 – 11:20** Coffee break

**13:00 – 14:30** Lunch break

**Plenary session 7 (auditorium 7): Convener – Paolo Lenisa (14:30 – 18:30)**

**16:30 – 16:50** Coffee break

**End of Workshop**

**19<sup>30</sup> – 22<sup>00</sup> Social program** (Banquet of the Workshop, „Mtatsminda“ restaurant)

## September 1, Thursday (Workshop, TSU) 9<sup>30</sup> – 18<sup>30</sup>

### *Agenda: JEDI Collaboration Meeting*

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- 09:00** Introduction  
FZJ strategy process  
COSY injector  
Analytical solution for EDM and fields gradients  
Polarized molecules  
A. Lehrach  
H. Stroehler  
R. Gebel  
A. Magiera  
R. Engels
- 11:00 – 11:20** Coffee break
- 11:20** **Spin Tracking & Final Ring**  
RF Wien filter & BPM's (status)  
Database exp.: beam-time preparation  
Beam Instrumentation (part 1)  
Beam Instrumentation (part 2)  
Accelerator setup for EDM  
A. Lehrach  
H. Soltner  
E. Stephenson  
F. Trinkel  
F. Hinder  
B. Lorents
- 13:00 – 14:30** Lunch break
- 14:30** Deflector development (Aachen)  
Deflector development (Juelich)  
Applying LOCO analysis at COSY  
Polarimetry overview  
The LYSO crystal tests  
Readout system  
Plans for detector tests  
SiPM development at Ferrara  
K. Grigoryev  
J. Boeker  
C. Weidemann  
I. Keshelashvili  
F. Mueller  
D. Mchedlishvili  
S. Park  
L. Barion
- 16:30 – 16:50** Coffee break
- 16:50** JuDit project: electronics part  
Towards the theory of dC-scattering  
Pubcom report  
**Precursor Experiment: status of preparation**  
D. Durini  
Yu. Uzikov  
A. Kacharava  
A. Lehrach
- Summary**  
H. Stroehler