



10 YEARS OF GEORGIAN-GERMAN SCIENCE BRIDGE



6th Georgian-German School and Workshop in Basic Science
GGSWBS'14

Workshop Program:
July 6 – 12, Tbilisi, Georgia

Topics:

1. Precision Experiments (with Hadronic Probes)
2. Condensed Matter Physics (with Photon and Neutron Probes)
3. Atmospheric Sciences (Chemistry and Models)
4. Medical Applications (Imaging)
5. Engineering Sciences (Simulation and Instrumentation)

Venue and general schedule of the meeting

Sun, July 6: Arrival (*early morning*); Tbilisi Tour (14⁰⁰ – 18³⁰)
Registration & Welcome Reception (19³⁰ – 22⁰⁰)
(*MUZA, 'Kusa Tba' road, Tbilisi*)

Mon, Tue (July 7, 8): Tbilisi State University (TSU)
(*Chavchavadze ave. 1, Main building*)

Wed, July 9: Social program (9³⁰ – 21⁰⁰)
(*Excursion to Dmanisi, Archaeological site*)

Thu, Fri (July 10, 11): Georgian Technical University (GTU)
(*Kostava str. 77, Administration building*)

Sat, July 12: Departure (*after midnight*)

July 7, Monday (TSU) 10⁰⁰ – 18³⁰

Existing and Future Cooperation

Plenary opening session I (foyer of acting hall) (10⁰⁰ – 13³⁰)

Welcome/Opening Address:

- Vladimir Papava, Rector of TSU
- Representative of Ministry of Education and Science of Georgia
- Representative of German Embassy in Tbilisi
- Sulkhan Sisauri, Director General of SRNSF
- Sebastian Schmidt, FZ-Jülich Board of Directors
- Hans Ströher, Director of IKP/FZJ: *Scope of the Workshop*

Ceremony session for signatures:

– Cooperation agreements between TSU and FZJ-Institutes

Projects and Prospects in Basic Science (Overviews) (11⁰⁰ – 13³⁰)

Sebastian Schmidt (FZJ) – *Forschungszentrum Jülich: Excellent Science and Technology* (30')

Hans Ströher (FZJ) – *Examples from the Precision Frontier* (30')
12:00 – 12:30 Coffee break (+ conference photo)

Thomas Brückel (FZJ) – *Neutrons - a Special Gift of Nature* (30')
Alexander Shengelaya (TSU) – *Condensed Matter Physics in TSU: Achievements and Perspectives*

13:30 – 15:00 Lunch break

→ Parallel sessions: 1, 2, 3, and 4 (15⁰⁰ – 18³⁰) (see flip side)

19³⁰ – 22⁰⁰ Social program (Welcome dinner, „Old Metekhi“ restaurant)

July 8, Tuesday (TSU) 9³⁰ – 18³⁰

Plenary session II (auditorium 07) (9³⁰ – 13⁰⁰)

Andreas Wahner (FZJ) – *Atmospheric Chemistry in Jülich* (30')

Astrid Kiendler-Scharr (FZJ) – *Aerosols in the Atmosphere* (30')

Hendrik Elbern (FZJ) – *Combining Atmospheric Models +Data* (30')
11:00 – 11:30 Coffee break

George Japaridze (Ilia) – *Synthetic helical liquid in quantum wire* (30')

Ismat Shah (Delaware Uni, USA) – *Solar Energy* (30')

Kazimierz Conder (PSI) – *Electrical Transport and Magnetic Interactions in 3d and 5d transition metal oxides* (30')

13:00 – 14:30 Lunch break

→ Parallel sessions: 5, 6, and 7 (14³⁰ – 17⁰⁰) (see flip side)

Poster (students) session 1 (17⁰⁰ – 18³⁰)

18³⁰ – 19³⁰ Reception at TSU (snack & beverage)

19³⁰ – 20⁰⁰ Awarding ceremony (acting hall)

20⁰⁰ – 20³⁰ Public Lecture: Prof. Otto Schult (Jülich) –

International Co-operation, driven by science and constrained by politics – „Happy Periods in Life“

20³⁰ – 22⁰⁰ Social program: TSU GORDELA's performance

July 10, Thursday (GTU) 10⁰⁰ – 18³⁰

Existing and Future Cooperation

Plenary session III (Nikoladze hall) (10⁰⁰ – 13³⁰)

Welcome Address:

- Archil Prangishvili, Rector of GTU
- Representative of Ministry of Education and Science of Georgia
- Hans Ströher – „GGSB: Status & Outlook“

Projects and Prospects in Basic Science (Overviews) (10³⁰ – 13³⁰)

Jon Shah (FZJ) – *From the Basics of MRI and PET to Hybrid MR-PET* (30')

Ghaleb Natour (FZJ) – *Technology for Excellent Science* (30')

Giorgi Nabakhtiani (GTU) – *Radioactive Waste Management: problems & trends for developments* (30')

12:00 – 12:30 Coffee break

Paata Kervalishvili (GTU) – *Isotope Effects in Condensed Matter and Sensory Applications* (30')

Farida Grinberg (FZJ) – *Diffusion MRI and its Applications in Neuroscience* (30')

13:30 – 15:00 Lunch break

→ Parallel sessions: 8, 9, 10, and 11 (15⁰⁰ – 18³⁰) (see flip side)

19³⁰ – 23⁰⁰ Social program (Banquet of the Workshop, „Taglaura“ restaurant)

July 11, Friday (GTU) 9³⁰ – 18⁰⁰

Plenary session IV (Nikoladze hall) (9³⁰ – 13⁰⁰)

Alfons Khoukaz (Münster Uni) – *Recent and Future Internal Targets for Hadron Physics* (30')

Paolo Lenisa (Ferrara Uni) – *Silicon Detectors in Particle Physics* (30')

Irakli Keshelashvili (FZJ) – *Development of Low Noise/Low Power Preamplifier for Low Gain Photosensors* (30')

11:00 – 11:30 Coffee break

Jörg Wolters (FZJ) – *Simulation Driven Product & Process Develop.* (30')

A. Tavkhelidze (Ilia) – *Nanostructured Materials for Renewable Energy* (30')

Olga Tsurtsumia (GTU) – *Diversified Application of Corrosion Resistant Materials* (30')

13:00 – 14:30 Lunch break

Poster (students) session 2 (14³⁰ – 16⁰⁰)

16:00 – 16:30 Coffee break

Plenary closing session V (Nikoladze hall) (16³⁰ – 18⁰⁰)

Dieter Grzonka (FZJ) – *Science Funding in Europe: HORIZON 2020* (30')

Concluding remarks (Summary of the Workshop and Forward Look) –

Germany: Hans Ströher (FZJ); Georgia: Marine Chitashvili (TSU) /

Ketevan Kotetishvili (GTU) / Avto Tavkhelidze (Ilia) / Irakli Noselidze

(SRNSF) / Representative (of Science Ministry)

Awarding ceremony (for students)

End of Workshop

July 7, Monday (TSU)

Parallel sessions: 1, 2, 3, and 4 (15⁰⁰ – 18³⁰)

Workshop group meetings and Topical lectures

Parallel session 1 (aud. 7) (Topic 1/JEDI): Convener – M. Nioradze
Jordy de Vries (FZJ) – EDM theory and motivation for JEDI (30')
Ralf Gebel (FZJ) – From COSY to a dedicated EDM storage ring (30')
Helmut Soltner (FZJ) – Precision beam monitors for COSY-Jülich (30')

16:30 – 16:50 Coffee break

Fabian Hinder (FZJ) – EDM study at COSY: recent results (20')
Sebastian Mey (FZJ) – An RF- ExB dipole for spin manipulation (20')
Andrea Pesce (Ferrara Uni) – Spin tracking studies for EDM search (20')
Andrzej Magiera (Jagiellonian Uni) – The Thomas BMT equation (20')

Parallel session 2 (aud. 20) (Topic 2): Convener – A. Shengelaya
Sultan Demirdis (FZJ) – „SANS study of vortex lattice structural transition on optimally doped BaKFeAs (30')
Aurel Radulescu (FZJ) – Neutrons and soft matter (30')
Vladimir Hutanu (RTWH Aachen) – Spherical neutron polarimetry as a powerful method for the precise magnetic structure determination (30')

16:30 – 16:50 Coffee break

Zurab Guguchia (PSI) – Novel oxygen isotope effects in the stripe phase of cuprates (30')
David Nozadze (Missouri Uni) – Smeared phase transitions in substitutional alloys $A1-xBx$ (30')
Vitali Gogoberidze (Ilia Uni) – Numerical exp.s on nanograting layers (30')

Parallel session 3 (aud. 21) (Topic 3): Convener – R. Botchorishvili
R. Botchorishvili (TSU) – Num. schemes for advection reaction eq. (30')
Hendrik Elbern (FZJ) – Atmospheric chemistry modelling (Lecture) (40')

16:30 – 16:50 Coffee break

Bezhan Chankvetadze (TSU) – TSU projects in physical and analytical chemistry (1h, 40')

Parallel session 4 (aud. 107) (Topic 4): Convener – K. Kotetishvili
Lukas Breuer (FZJ) – Investigating the spatio-temporal dynamics of neuromagnetic activity by using magnetoencephalography (30')
Nino Kobalia (GTU) – General aspects of radiation therapy (20')
Zviad Mgaloblishvili (GTU) – Computer based device for ionophores and galvanization (20')

Vakhtang Chkhaidze (Medulla Clinic) – Main principles of the management of oncology patients: “MEDULLA“ Clinic experience (20')

16:30 – 16:50 Coffee break

Giorgi Gigilashvili (GTU) – Computer analyzer for field of vision (20')
Archil Chirakadze (GTU) – Phyto- and bioremediation of radioactive Cs-polluted soils and complex utilization of generated hazardous waste (20')
Dito Shergelashvili, Mikheil Kelenjeridze, Tamar Khechiashvili (GTU):
– Experience gained during the internship program at INM-4 /FZJ (30')
Elene Iordanishvili (Tbilisi State Medical Uni) – The role of CT and MRI in evaluation of Osteoid Osteoma (20')

July 8, Tuesday (TSU)

Parallel sessions: 5, 6, and 7 (14³⁰ – 17⁰⁰)

Workshop group meetings and Topical lectures

Parallel session 5 (aud. 7) (Topic 1/ANKE): Convener – M. Nioradze
Erhard Steffens (Erl. Uni) – Spin as a tool for storage ring experiments (Lecture) (40')

David Mchedlishvili (TSU) – Double-polarized np-exp.s at ANKE (15')
Zara Bagdasarian (TSU) – Recent results from pp-elastic exp. (15')
Ralf Engels (FZJ) – Polarized fusion (20')

16:00 – 16:20 Coffee break

Akaki Rusetsky (Bonn Uni) – Lattice QCD and the Effective Field Theories (Lecture) (40')

Parallel session 6 (aud. 107) (Topic 2): Convener – A. Shengelaya
Raphael Hermann (FZJ) – Thermoelectrics (30')
Manuel Angst (FZJ) – Ordering phenomena (30')
Benedikt Klobes (FZJ) – Structural materials (30')

16:00 – 16:20 Coffee break

Karen Friese (FZJ) – Crystallography (20')
Larissa Juschkin (RWTH) – Light for the nanoworld: applications of extreme ultraviolet radiation in nanostructuring and metrology (20')

Parallel session 7 (aud. 101) (Topic 3): Convener – R. Botchorishvili
Franz Rohrer (FZJ) – Introduction to specific atmospheric chemistry (Lecture) (45')
Ramaz Gakhokidze (TSU) – TSU projects in organic and inorganic chemistry (45')

16:00 – 16:20 Coffee break

Students activity: – „Hands on chemistry process modeling“ (40')

Information:

Conference web-site:

<http://collaborations.fz-juelich.de/ikp/cgswph>

Tel-numbers:

Andro Kacharava: +995-5-95 36 12 96

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Organizers & Sponsors



July 10, Thursday (GTU)

Parallel sessions: 8, 9, 10, and 11 (15⁰⁰ – 18³⁰)

Workshop group meetings and Topical lectures

Parallel session 8 (Nikoladze) (Topic 1/PAX): Convener – A. Kacharava
Paolo Lenisa (Ferrara Uni) – Introduction to PAX experiment (10')
Vito Carassiti (Ferrara Uni) – Multipurpose detection system for PAX (20')
Dieter Eversheim (Bonn Uni) – TRIC/COSY exp.: status & preparation (30')
Konstantin Tsigutkin (California Uni) – Atomic parity-violation effect (30')

16:30 – 16:50 Coffee break

Andreas Nogga (FZJ) – Theory of 3-nucleon forces (30')
Pia Thorngren (Stockholm) – Deuteron breakup at low energies (25')
Susanna Bertelli (Ferrara) – Exp. study of BUP reaction at 50MeV (15')
Detlev Gotta (FZJ) – Ultimate precision spectroscopy of hadr. atoms (30')

Parallel session 9 (aud. 401) (Topic 2): Convener – A. Tavkhelidze
David Jishiashvili (GTU) – Development of new oxide-assisted technology for nanostructures (30')

Lili Nadaraia (GTU) – Spark plasma sintering of ultra high temperature ceramics (30')

Malkhaz Jabua (GTU) – Ultimate resolution X-ray measurements at the IKP Bragg spectrometer (30')

16:30 – 16:50 Coffee break

Tamar Chelidze (TSU) – Coulomb impurities in semiconducting nanostructures (30')

Mikheil Mebonia (Ilia) – Electronic and thermoelectric properties of nanograting layers (30')

Alexander Jishiashvili (GTU) – Growth of In_2O_3 nanowire networks for gas sensing device applications (20')

Giorgi Khazaradze (TSU) – Study of hexaferrite material ($BaSrZnFeO$) by EPR technique (25')

Parallel session 10 (aud. 326) (Topic 3): Convener – R. Botchorishvili
Teumuraz Davitashvili (TSU) – On numerical modelling of regional atmospheric processes over the caucasus (30')
Ketevan Kasradze (Köln Uni) – Optimization for inverse modelling (30')
Mariam Elizbarashvili (TSU) – Climate change tendencies in Georgia under global warming condit (30')

16:30 – 16:50 Coffee break

Students activity: Franz Rohrer, Astrid Kiendler-Scharr, Andreas Wahner – Questions and Answers for Atmospheric Chemistry Exercise (1h, 40')

Parallel session 11 (meeting room) (Topic 4): Convener – K. Kotetishvili
Jon Shah (FZJ) – Introduction to MRI and PET (Lecture) (45')

16:30 – 16:50 Coffee break

Farida Grinberg (FZJ) – Introduction to Diffusion MRI (Lecture) (45')