

# GEORGIAN-GERMAN SCIENCE BRIDGE (GGSB) 2022

"Health as a Global Challenge:  
Contributions by GGSB and its SMART|Labs"

September 12 – 16, 2022, Kutaisi & Tbilisi (Georgia)

- Fundamental Research and Applications in Physics
- Accelerator Research and Applications in Medicine
- Medical Imaging and Radionuclides for Life Sciences
- Machine Learning and Image Analysis
- Atmospheric Sciences and Environment
- Mechanical and Electrical Engineering

Topical Lectures and Training Courses for Students

**GGSB2022 – Kutaisi and Tbilisi****Sunday, September 11 (KIU, Kutaisi)****Arrival, Campus Tour & Welcome Reception at KIU****[19:00 – 21:00]****Monday, September 12 (KIU, Kutaisi)****– GGSB Follow-Up –****Opening Session: Welcome & Opening Addresses** [Convener: Alexander Tevzadze]**[5 min, 11:00 – 11:30]**

Alexander Tevzadze (Rector KIU)

Mikheil Chkhenkeli (Minister of Education and Science of Georgia)

Sebastian Schmidt (Scientific Director HZDR)

Ghaleb Natour (Director ZEA-1, FZ)

Thomas Stöhlker (Deputy Science Director, GSI; Director HIJ)

Gebhard Reul (Head DAAD Regional Office Tbilisi)

**Session 1: Georgian-German Science Bridge (GGSB)** [Convener: Mikheil Chkhenkeli]**[15 min, 11:30 – 13:00]**

- Hans Ströher                      Georgian-German Science Bridge (GGSB): Retrospective
- N. Jon Shah                        Georgian-German Science Bridge (GGSB): Prospective GGSB-PLUS
- Sebastian Schmidt                New German Partner: Helmholtzzentrum Dresden-Rossendorf (HZDR)
- Thomas Stöhlker                 New German Partner: GSI Helmholtzzentrum für Schwerionenforschung
- Possible New German University Partners: Example Jena University
- Achim Stahl                        Possible New German University Partners: Example RWTH Aachen Univ.
- Tamar Lominadze                 Consortium of the Georgian Universities: Example GTU
- Zaza Metreveli                    Consortium of the Georgian Universities: Example AUG

**Lunch break** [13:00 – 14:00]**Session 2: Guiding Ideas: Scientific & Societal Challenges** [Convener: Hans Ströher]**[20 min, 14:00 – 16:00]**

- T. Stöhlker/Jim Ritman            Fundamental Science: FAIR project & Exp.'s at GSI
- Andreas Wahner                    Climate Change
- N. Jon Shah                         Biomedical Imaging
- Wolfgang Enghardt                Proton Therapy Dresden
- Hanno Scharr                        High Performance Computing OR Machine Learning

**Coffee break** [16:00 – 16:30]

**KIU International Advisory Board Meeting (internal)****[16:00 - 17:30]****In parallel: Poster Session for Students** [Convener: Ramaz Botchorishvili]

• Opportunities for students in frame of GGSB:

Eva Portius (FZJ), Ghosh Pradeep (GSI), Sandra Hamann (HZDR)

**Dinner** (Restaurant Chateau Gelati)**[19:00 - 21:00]****GGSB2022 – Kutaisi and Tbilisi****Tuesday, September 13 (KIU, Kutaisi)****– GGSB Strategic Focus –****Plenary Session 3: GGSB-PLUS [Convener: Revaz Shanidze]****[20 min, 9:30 – 11:00]**

- N. Jon Shah                      Biomedical Imaging Modalities in GGSB-PLUS
- Bernd Neumaier                Medical Diagnostics: Radiotracers
- Nugzar Kalandarishvili        Medical Treatment: Radiology
- Beka Bochorishvili            Medical Treatment: Radiology

**Coffee break [11:00 – 11:30]****Plenary Session 4: GGSB Future (I) [Convener: Irakli Keshelashvili]****[11:30 – 13:00]**

- Vakhtang Tsagareli            Hadron Therapy Center (HTC): Implementation & Status – **15 min**
- Revaz Shanidze                Hadron Therapy Center (HTC): Introduction – **15 min**
- Jürgen Fassbender            Ion Beam Center@HZDR – from basic science to industr. Appl. - **20 min**
- Peter Kaefer                    Controlling Advanced Experiments (part I) – **20 min**
- Gerald Wedel                  Controlling Advanced Experiments (part II) – **20 min**

**Lunch break [13:00 – 14:30]****Plenary Outreach Session: Public Lecture****[45 min]**

- Roberto Orecchia              Hadron Therapy: current status and new perspective to realize High Precision Radiation Therapy

**Cultural program** (Excursion including dinner in the city)**[17:00 – 21:00]**

## GGSB2022 – Kutaisi and Tbilisi

Wednesday, September 14 (KIU, Kutaisi)

**Plenary Session 5: GGSB Future (II) - SMART|Labs** [Convener: A. Wahner] [10:00 – 12:00]

- N. Jon Shah/Ramaz B. SMART|Bioimaging\_Lab: Imaging part
- B. Neumaier/Bezhan Ch. SMART|Bioimaging\_Lab: Chemistry part
- Hanno S./Ramaz B. SMART|Data\_Lab: Machine Learning at KIU
- Christian Schmidt SMART|Detector\_Lab at GSI
- Stefan van Wassen SMART|Digital\_Lab: Electronics part
- Ghaleb Natour SMART|Tech\_Lab: Engineering part
- Hans Ströher Vision: Georgian Science and Technology Center (GSTC)

**Lunch break** [12:30 – 14:00]

Wednesday (afternoon, 15:00 – 18:00), September 14, 2022

*Transfer from Kutaisi to Tbilisi (hotel “Orion”)*

## GGSB2022 – Kutaisi and Tbilisi

Thursday, September 15 (TSU, Tbilisi)

– GGSB at Georgian Partner Universities –

**Plenary Session 6: Existing and Future SMART|Labs** [Conv.: Hans Stroehrer] [9:30 – 11:00]

Welcome addresses: Nino Okribelashvili (Vice Rector of TSU) – 5 min  
Dimitri Kordzaia (Dean of the Medical Faculty) - 10 min

- David Mchedlishvili SMART|EDM\_Lab: Science Case – Search for EDMs and DM – 15 min
- Otari Javakhishvili Contributions to the SMART|EDM\_Lab – 15 min
- Dachi Okropiridze Contributions to the SMART|Detector\_Lab (GSI) - 15 min
- Giorgi Jibuti SMART|AtmoSim\_Lab: Science Case – Atmospheric Chemistry- 15 min
- Iulia Gensch Contrib's to SMART|AtmoSim\_Lab: The 'Hydrocarbon Clock' – 15 min

**Coffee break** [11:00 – 11:30]

- N. Jon Shah SMART|BioImaging\_Lab: Science Case – Medical Diagnostics
- Bernd Neumaier SMART|BioImaging\_Lab: Science Case – Radiotracers
- Heike Endepols SMART|BioImaging\_Lab: Small animal PET imaging (Univ. Cologne)
- David Arutinov SMART|Digital\_Lab: Background – Technology for Research
- Harald Glueckler SMART|Tech\_Lab: Background – Technology for Research
- Christian Schmidt SMART|Detector\_Lab: Contributions to GSI/FAIR Projects
- Hanno Scharr SMART|Data\_Lab: Background – Machine Learning

**Lunch break** [13:00 – 14:30]

**Plenary Session 7: Student Activities at SMART|Labs** [Convener: Andro Kacharava]  
[15 min, 14:30 – 16:00]

Ninea Anasovi	Contribution to the SMART EDM_Lab
Lia Karadurmus	Contribution to the SMART AtmoSim_Lab
Nana Khundadze	Contribution to the SMART AtmoSim_Lab
Otari Gokhadze	Contribution to the SMART BioImaging_Lab
Tamar Khatishashvili	Contribution to the SMART BioImaging_Lab
Natia Beriashvili	Contribution to the SMART BioImaging_Lab
Tamar Khechiashvili	Experience as a Medical Physicist at the National Center of Surgery

**Visit of National Center of Surgery in Tbilisi** (Tamar Khechiashvili) [16:00 – 17:30]

**Visit of Institute of Morphology TSU in Tbilisi** (Dimitri Kordzaia) [17:30 – 18:30]

**Dinner** (Restaurant Paemani Veraze) [19:30 – 21:30]

**GGSB2022 – Kutaisi and Tbilisi**

**Friday, September 16 (TSU, Tbilisi)**

**– School Part: Student Presentations –**

**Plenary Session 8: (in total about 25) Student Presentations** [9:30 – 11:00]

**Introduction:**

- Ghosh Pradeep *GET\_INVolved* Program at GSI – 10 min
- Eva Portius 3rd *QUALI-Start-Up Lectures* (planned in 2023) at FZJ – 10 min

**Convener: Zaza Metreveli (AUG, Mechanical and Electrical Engineering)**

- Engineering (AUG): Nika Putkaradze, Ketevan Lomjaria, Sandro Razmadze, Mariam Papava, Vazha Purtseladze, Luka Zaalishvili, Luka Zaalishvili
- Physics (TSU): Mariam Abuladze, Revaz Beradze, Medea Abramishvili

**Coffee break** [11:10 – 11:30]

**Convener: Bezhan Chankvetadze /Giorgi Jibuti (TSU, Chemistry)** [11:30 – 13:00]

- Chemistry – I: Natia Tchanturia, Nutsa Tsetskhladze, Ana Rakviashvili, Nino Chapidze
- Chemistry – II: Lika Kirtadze, Ani Rurua, Mariam Shvelidze, Saba Jorbenadze

**Lunch break** [13:00 – 14:30]

**Convener: Dimitri Kordzaia (TSU, Medical Faculty)** [14:30 – 16:00]

- Merab Chanturia, Giorgi Aleksanashvili, Nino Kharashvili, Rati Khorbaladze - (et al.,)

**Convener: Mikheil Chikhradze (GTU, Engineering physics department)**

- Nini Kvintradze, Ana Palavandishvili, Mariam Ghvaladze

**Coffee break** [16:00 – 16:30]

**– Summary GGSB2022 –**

**Plenary Session 9: Next Steps** [16:30 – 17:30]

- Hans Ströher/Andro Kacharava **Conclusions and Outlook**



