



SMART|Labs

Science, Medicine, Applied Research and Technology

Background and Objectives

Foster cooperation between institutes of **Forschungszentrum Jülich** and a consortium of **Georgian universities** (Agrarian University of Georgia (AUG), Georgian Technical University (GTU), Iliia State University (ISU) and Tbilisi State University (TSU))

Umbrella organization for activities: **Georgian-German Science Bridge (GGSB)**

Connect scientists and students of both countries via common research projects and through education

New concept: **SMART|Labs**

Well-equipped and maintained modern laboratories affiliated with one of the Georgian universities

Small group of experts and students headed by an outstanding young Georgian scientist

Dedicated to specific projects in different fields of fundamental and applied science

Structure

Science case

based on a topical scientific or medical question/problem

Key technology

strong technological component with possible applications

Educational component

provide Georgian students access to leading research infrastructures

Goals

returning young scientists to Georgia
developing Georgian science & technology
educating Georgian students

Implementation

comprising 3-5 scientists/engineers
headed by young Georgian scientist as PI
cooperation with partner at FZJ

Realization

proposed/supported by FZJ & Georg. univ.
approved and financed by MoE/SRNSF
common applications for further funds

Examples

SMART|EDM_Lab

Science

Matter/antimatter asymmetry of universe



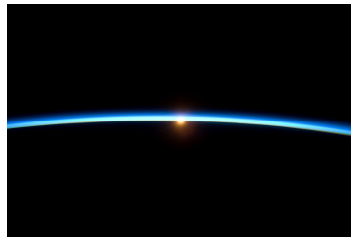
Why is there matter (at all) but no antimatter?

Project: Beam polarimetry
Technology: Detector/target design, construction, electronics, readout
Application: e.g. PET detectors
PI: Dr. David Mchedlishvili (HEPI TSU)
Partner: IKP-2
Start: 01/01/2017

SMART|AtmoSim_Lab

Science

Climate research



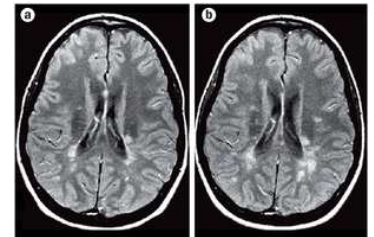
Earth's atmosphere from space

Project: Atmospheric simulations and measurements
Technology: Micro-/nano analytics
Application: e.g. forecast regional air quality
PI: Dr. Giorgi Jibuti (TSU)
Partner: IEK-8
Planned: 01/01/2018

SMART|MRI_Lab

Science

Magnetic resonance imaging (MRI)



MRI scans of a human brain

Project: Quantitative MRI
Technology: Sequence development, image reconstruction, evaluation software
Application: Neuroscience, diagnosis
PI: NN (GTU)
Partner: INM-4
Planned: 01/01/2019

Outlook

Extension to further research centres and universities in Germany and Georgia

Cooperation between **SMART|Labs** leading to a **SMART|Hub**

Option for regional project: **Caucasian-German Science Bridge (CGSB)**

