IAG Project – Novel Sensors and Quantum Technology for Geodesy (QuGe)

Minutes of Meeting
Sep 29, 2022, 16:00–18:30 (CET)
Online, via WebEx

Participants
Jürgen Müller (JM), Marcelo Santos (MS), Christian Lisdat (CL), Frederica Migliaccio (FM), Franck Pereira dos Santos (FPS), Gabriel Guimarães (GG), Jakob Flury (JF), Michael Murböck (MM), Michel Van Camp (MC), Erricos C. Pavlis (EC), Gerard Petit (GP), Ulrich Schreiber (US), Bob Spero (BS), Samuel Francis (SF)

1 Welcome
JM opened the meeting, thanking the participation of everyone.

2 Approval of the agenda
The agenda previously distributed by e-mail was approved

3 Approval of last meeting minutes
The minutes of the last meeting (Dec 30, 2021), which was distributed previously, was approved.

4 Reports

4.1 Office (JM)
JM started by overviewing the composition of the working groups. WG Q.1 remains under the leadership of Franck Pereira and Michel van Camp. WG Q.2 has a new chair and co-chair, namely, Samuel Francis (JPL) and Kirk McKenxia (Australian National University). WG Q.3 also has a new chair and co-chair: Jakok Flury (University Hannover) and Pacome Delva (SYRTE, Paris). JM made a presentation overviewing the activities of QuGe Project since the last meeting. He provided a brief overview of QuGe participation in the EGU 2022 Scientific Assembly, “Modern Concepts for Gravimetric Earth Observation”, with 21 presentations. A similar effort was proposed to the EGU 2023. Another successful initiative was the session at COSPAR 2022, “H0.5 - Advanced Methods for Geodesy, Metrology, Navigation and Fundamental Physics” with 30 presentations. JM reminded the incoming Joint Symposium of IAG with IAPSO, IASPEI, IAVCEI to take place at IUGG 2023, in Berlin, in July. The symposium is called “Modern Gravimetric Techniques for Geosciences.” The abstract submission to the IUGG will start in October. JM also commented on a short note in the GIM maganize: “Van Camp, M., Pereira dos Santos, F., Müller, J. (2022): Lasers and cold atoms in space and on ground. GIM International, 4/2022.”

4.2 WG 1 Quantum gravimetry in space and on ground (FPS)

WG1 report included general information on activities in 2022 as well as contributions by individual WG members. Ashton Flinders, update on the USGS's acquisition and planned use of their new AQG; Federica Migliaccio; update with the news from Italy; Olivier Carraz, update on MAGIC/NGGM missions as well as quantum activities at ESA\EOP; and Nan Yu, QGG and hybrid concept. There have been a few papers published and two of them were quoted, published on Physics Review and on Nature. The report included description on efforts to liaison with industry partners and the calls for the Horizon project. Future actions include internal meetings and working on the idea of organizing presentations with industry.

4.3 WG 2 Laser interferometry for gravity field missions (SM)

WG2 report started mentioning the inclusion of new members: Andrew Wade (Australian National University), Emily Rose Rees (Australian National University), Clément Courde (Géoazur), Julien Chabé (Géoazur), and Julie Rolla (Jet Propulsion Laboratory). There have been a number of publications by WG1 members in a Special Issue of Remote Sensing "Space-Borne Gravimetric Measurements for Quantifying Earth System Mass Change". Proposed activities for 2023 include meetings with WG members to discuss GRACE-FO LRI data and its applications. It also includes the establishment of a roadmap paper for future of inter-satellite laser ranging, including literature review of proposed GRACE-like mission architectures, point design for future architecture. It will be open to all members of the group but plan to use this to engage early-career members of the group. And planning a workshop to brainstorm future architectures, including team working on literature review will present findings and open discussion to come up with: including new architectures that build off recent technology advancements and identifying gaps in technology or things we collectively need to work on.

4.4 WG 3 Relativistic geodesy with clocks (JF)

Report did not use slides. It focused on the incoming WG3 online meeting scheduled for Oct. 25.

5 Planned activities (JM)

Among the possible future actions, a number of them were specifically mentioned, among them, contribution to conferences, enlarge the cooperation among QuGe members and working groups, enhance the communication with other groups outside of the QuGe, and target new other initiatives and deliverables, such as workshops and paper. There was also a request to update websites, those of the QuGe but also those form the working groups. And, a final reminder about the incoming IUGG General Scientific Assembly, July 2023 is approaching fast.

6 AOB

Next meeting to happen in six months, in a date to be determined.

Minutes prepared by MS.