

BIOQIC Newsletter – 2nd edition June 2017

By Judith Bergs, BIOQIC Coordinator

The BIOQIC entry block seminars, our 3-week introduction course on methods in quantitative imaging, has now ended and the students have started with their PhD projects. The seminars were concluded by a BIOQIC retreat.

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1. An introduction of the BIOQIC PhD students

We are happy to welcome Nader Aldoj, Jean Pierre Bassenge, Gergely Bertalan, Sebastian Dietrich, Anna Grunwald, Matteo Ippoliti, Andreas Kofler, Ledia Lilaj, Jan Macdonald, Johannes Mayer, Azadeh Mohtashamdolatshahi, Felix Schrank, Yavuz Uca, Stephan Wäldchen and Patrick Werner to the BIOQIC team. The PhD-student cohort consists of chemists, physicists, computer scientists, biomedical engineers, biologists and mathematicians and comprises 6 different nationalities. Contact details and project titles are summarized in the table below. Furthermore, up-to-date abstracts of the PhD projects can be found on our website: <https://bioqic.de/phd-students/>

Name	Starting date	Email	Phone	PI's	Project title
Nader Aldo	01.04.2017	nader.aldoj@charite.de	+49 30 450 527 365	Dewey, Schäffter, Kutyniok	Deep learning for detection and grading prostate cancer
Jan Pierre Bassenge	01.09.2017	jean.bassenge@ptb.de	+49 30 3481 7471	Schmitter Schulz-Menger Kutyniok/Kühne	Compressed sensing MRI for 4D-cardiac flow quantification
Matteo Ippoliti	01.04.2017	matteo.ippoliti@charite.de	+49 30 450 527 375	Makowski Brenner Abram	Characterization of tumor flow-metabolism mismatch by PET and MRI/ quantitative susceptibility mapping in the brain
Jan Lucas Macdonald	01.06.2017	macdonald@math.tu-berlin.de	+49 30 314 27379	Kutyniok Schäffter Schulz-Menger	Machine learning approaches for MR-fingerprinting of cardiovascular flow
Gergely Bertalan	01.04.2017	gergely.bertalan@charite.de	+49 30 450 539 078	Laufer/Sack Fischer Schmitt/Duda	Quantitative tissue characterization by multimodal imaging of tumor perfusion and effective-medium mechanical parameters in a preclinical model of lymphoma
Felix Schrank	01.04.2017	felix.schrank@charite.de	+49 30 450 539 078	Sack Schulz-Menger Ittermann	Time-resolved cardiac magnetic resonance elastography
Ledia Lilaj	01.06.2017	ledia.lilaj@charite.de	+49 30 450 539 078	Fischer Sack Hirsch/Jöhrens	Poroelastography MRI and ultrasound for the measurement of tissue pressure
Andreas Kofler	01.06.2017	andreas.kofler@charite.de	+49 30 450 527 365	Sack/Dewey Kachelrieß	CT quantification of perfusion and elasticity related parameters in the heart
Stephan Wäldchen	01.05.2017	stephanw@math.tu-berlin.de	+49 30 3142 5752	Taupitz Schröder Makowski	Robust recovery strategies for the acoustic inverse scattering problem in anisotropic systems
Sebastian Dietrich	01.09.2017	sebastian.dietrich@ptb.de	+49 30 3481 7535	Schäffter Schulz-Menger Niendorf	Quantitative MRI for assessment of myocardial fat infiltration at ultra-high field strength
Yavuz Uca	01.05.2017	yavuz-oguz.uca@charite.de	+49 30 450 539 066	Taupitz Schröder Makowski	Characterization and quantification of atherosclerosis by magnetic nanoparticle (MNP)-based MRI: Investigation of tissue structural alterations with the focus of sugar-based components of the extracellular matrix
Patrick Werner	01.04.2017	werner@fmp-berlin.de	+49 30 947 93 279	Schröder Taupitz Bick	Enzyme-activated Xe-MRI contrast agents for molecular imaging
Anna Charlott Grunwald	21.04.2017	anna.grunwald@fu-berlin.de	+49 30 838 907 514	Abram Brenner Braun	Bioconjugation kits for multi-metal use and multi-organ targeting
Johannes Mayer	01.06.2017	johannes.mayer@ptb.de	+49 30 3481 7233	Schäffter Brenner Makowski	Quantitative assessment of coronary plaques by motion-compensated PET- MRI
Azadeh Mohtashamdolatshahi	01.06.2017	azadeh.mohtashamdolatshahi@charite.de	+49 30 450 539 074	Taupitz Schäffter Schnorr/Käs	Towards quantitative structure-sensitive MPI: Application for sentinel lymph node detection

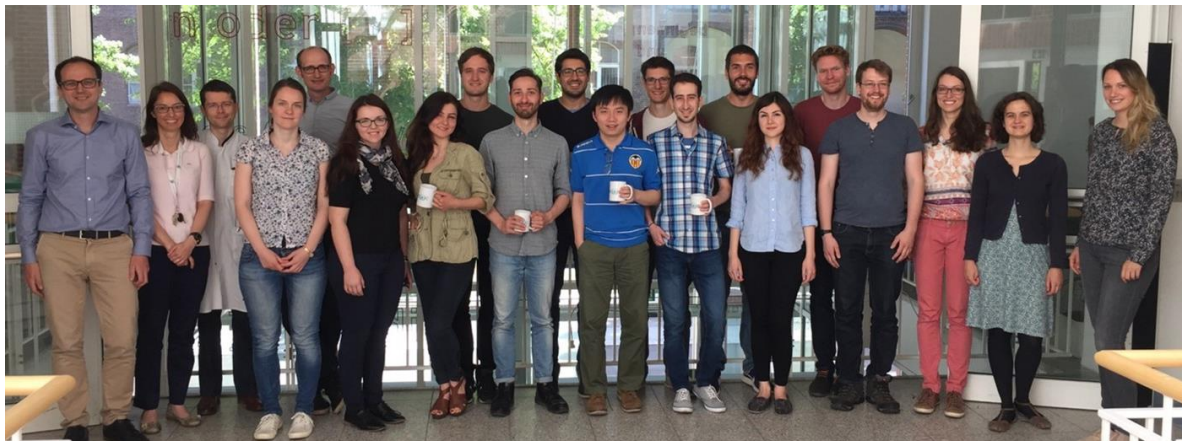
Table 1: BIOQIC PhD students, their projects, supervisors and contact details

Name	Affiliation	Email
Selma Metzner	PTB, Physikalisch-Technische Bundesanstalt	selma.metzner@ptb.de
Juliane Ludwig	PTB, Physikalisch-Technische Bundesanstalt	Juliane.ludwig@ptb.de
Clarissa Wink	PTB, Physikalisch-Technische Bundesanstalt	Clarissa.wink@ptb.de
Judith Lehnert	PTB, Physikalisch-Technische Bundesanstalt	Judith.lehnert@ptb.de
Lin Yang	PTB, Physikalisch-Technische Bundesanstalt	Lin.yang@ptb.de
Domenik Nowak	FU, Freie Universität Berlin	Domenik.Nowak@fu-berlin.de

Table 2: PhD students associated to BIOQIC, their affiliations and email addresses, to be extended soon...

2. BIOQIC entry block seminars

The BIOQIC entry block seminars took place from June 1-21st and have been well received by the PhD students. The seminars were attended by an average number of 20 people, including the BIOQIC PhD students and external students associated to BIOQIC. Other scientists with interest in the topics presented attended as well: the lectures were open to everybody with interests in the field. Quality of the lectures was assessed by means of a feedback and presence form where students could rate the lectures, give comments for future improvements and sign their attendance of each lecture. Students could choose from ratings A-D, where A = outstanding, B = excellent, C = good, D = needs work. The average rating of the lectures was A/B, meaning outstanding/excellent.



The seminars highlighted various imaging topics, such as history of medical imaging, ultrasound, MRI, CT, SPECT/PET, NMR, deep learning, nanoparticle imaging, MRE and many more. Interesting novelties in the field were introduced as well. In addition to theoretical background, there were also some hands-on training sessions and demonstrations. By following the seminars, the students get ECTS points awarded (0.5 per day, 7 ECTS in total), which are necessary for allowance of their thesis defense at

a later time point in their PhD careers. Attendance of the courses is acknowledged by a certificate, with the number of earned ECTS points indicated. It was also a nice opportunity for the students to get to know each other well and to discuss in an informal way with the PI's involved in the BIOQIC program. Some PI's interacted with the students by means of quizzes or exercises, this was very well appreciated by most of the students. After the intensive 3-week training, a retreat was organized to the beautiful Spreewald region, about 100 km south-east of Berlin. There, students could finally digest the scientific input while canoeing around Lübbenau.

3. BIOQIC retreat 2017: canoeing in the Spreewald

The retreat took place on June 22nd, right after the BIOQIC entry block seminars. After a one-hour train ride to Lübbenau in the Spreewald, a canoe-tour was made through the spider web of canals.



The canoe-tour was intermitted by a lunch break in the form of a picnic, after which everybody canoed back to the boat rental place. The last few minutes of the canoe tour were challenging due to the weather conditions and the train back to Berlin was affected. Luckily, we were back to the boat rental place just in time and could continue our travel back to Berlin after some perturbations. So everything went quite smoothly. The pictures speak for themselves...



4. Supervision contracts and PhD rules at Charité

Supervision of the PhD students is carried out by a first PI (principle investigator), in concert with two co-PI's (second and third supervisor). It is important that regular meetings are organized between the PhD student, the PI and the co-PI's. This tandem concept with supervisors from basic science and clinical subjects and co-mentoring by associated researchers is a hallmark of BIOQIC. For the supervision, a promotion agreement

(https://promotion.charite.de/fileadmin/user_upload/microsites/sonstige/promotion/Neue_PO/Promotionsvereinbarung_eng_NEU_3-12-2012.pdf) has to be filled and

signed by all involved parties and submitted to the promotion office of the Charité. **This promotion agreement is obligatory and should not be confused with the matriculation as a student at the Charité which is not obligatory but has many advantages. The promotion agreement should be signed by all involved parties and submitted to the promotion office as soon as possible, i.e. within the next few weeks. More information on the PhD tract at Charité is provided on our website (<https://bioqic.de/faq/#1497530334587-9b132e21-422d>).**

A short first progress report to the PhD committee (transfer viva) will take place after 3 months, for most students this will be on BIOQIC day on September 27th. This ensures implementation of quality metrics and formal assistance at the earliest possible time point during the PhD project. Further reports to the PhD committee are planned after 1.5 and 2.5 years of the project start. With these reports, the proposed project plan is scrutinized and discussed with the members of the PhD Committee. The PhD committees will assist the doctoral researchers in monitoring their performance, in particular pertaining to project progress, but also, in the planning of the qualification program including lab rotations, internships and courses. These meetings will be flanked by the continuous interactions between PhD candidates and committee members regarding all aspects of their scientific work and the young researchers' career options including all aspects related to child care and family life.

5. Upcoming events

Please find below a list of upcoming BIOQIC and BIOQIC-associated events, details can be found on our website:

July

- July 18th @ 5:00 pm – 7:00 pm, **BIOQIC seminar**: Macroscopy and histology of different organs, by Korinna Jöhrens
- July 25th @ 5:00 pm – 7:00 pm, **BIOQIC seminar**: Aspects of drug development in research and development on imaging probes, by Matthias Taupitz

August

We'll have a summer break for seminars in August.

September

- September 1st-30th Paul Janmey from the University of Pennsylvania and member of the BIOQIC advisory board will visit the Charité for research projects in the field of cytoskeleton, mechano signalling, and cell mechanics
- September 5th @ 5:00 pm – 6:30 pm, **BIOQIC seminar**: good scientific practice, by Marc Dewey
- September 19th – 20th, Quantitative Cardiac Imaging Meeting: Coronary Plaques and Myocardial Perfusion (organized by Marc Dewey) at Charité Berlin
- September 27th, BIOQIC Day (see information below)
- September 28th – September 29th, 1st international MRE Workshop (organized by Ingolf Sack and Judith Bergs) at Charité Berlin

October

- October 4th – October 6th, Conference Physics of Cancer, (organized by Josef Käs) at University Leipzig

On September 27th, the first BIOQIC Day will take place during which the PhD students introduce their research projects. The BIOQIC Day will start with a keynote lecture by Prof. Duda (BSRT, BCRT, Julius Wolff Institut, & Charité Berlin), followed by the student presentations which are open to the public and evaluated and discussed by the

respective PhD committees. The abstracts of these BIOQIC Day presentations are the project descriptions in the student section on our website: <https://bioqic.de/phd-students/>

BIOQIC Day will be followed by the **1st international MRE workshop from September 28-29th**. The meetings are open to all BIOQIC researchers and will be held at the Charité Campus Mitte. Registration has opened and the deadline for abstract submission will be July 30th. A registration form and an abstract submission form can be found on our elastography website (<http://elastography.de/mre-workshop/>) along with the preliminary program. Paul Janmey (Univ. of Penn, USA) and Kristian Franze (University of Cambridge, UK) will give keynote lectures. A social get-together and tour through the Naturkundemuseum is planned as evening program on September 27th.

6. Information for PIs

Please send to me the information on your BIOQIC-associated PhD-students! Students which are affiliated to BIOQIC are eligible to benefit from support programs including as stipends or means from the funds of gender equality.

On June 30th, Ingolf and I attended the DFG information meeting for coordinators and chairs of research training groups (Graduiertenkollegs) in Bonn. We received a lot of important information including the requirements for annual financial reports. Please note, Graduiertenkollegs are subjected to annual financial plans that in no means can be transferred into the next calendar year (Haushaltsjährlichkeit). Further information can be provided by Ingolf or me.

7. Miscellaneous

BIOQIC is very international! A number of 6 nationalities are represented among the BIOQIC PhD students. Consequently, there is a demand for learning the German language. BIOQIC can cover an amount of up to 300 euros for German language courses. We are also open to ideas how to improve gender equality and support to families in BIOQIC (DFG would cover some of the expenses). Please do not hesitate to contact me.

The BIOQIC seminars should be attended by all students, since they are organized especially for them and should take advantage of this opportunity to learn from national and international experts in the field. In case a student is not able to attend the lectures, he/she should give a notification to me, the BIOQIC coordinator!

8. Acknowledgements

We would like to thank the 30 teachers involved for their valuable contributions! We are also grateful to Prof. Jörg Oestmann for making his seminar room available for our lectures.

Thank you all very much for your contributions and efforts!

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