„ Czech-Austrian Workshop on Magnetic Resonance Imaging and Spectroscopy 2021"
(Project number: 89p8)

Final Report

The goal of this project was to organize international workshop on Magnetic Resonance for Czech and Austrian research fellows and students with the main goal to familiarize the audience with the scientific projects and recent advances in medical research sites focused on magnetic resonance imaging and spectroscopy. These traditional workshops are organized by participating groups from Vienna and Prague since 1995. Despite the epidemiologic problems and travel restrictions in 2021 we could speak to and gather the participants from Charles University in Prague, Institute for Clinical and Experimental Medicine, Medical University of Vienna, Technical University Graz, Medical University Graz, CEITEC (the Central European Institute of Technology) and Institute of Scientific Measurement, Czech Academy of Sciences, Brno.

The workshop held took place in Pozlovice, Hotel Valašský hotel a Pivní lázně OGAR from 13rd till 15th September 2021. It was attended by 54 scientists from both countries. A great mix of young scientist at all graduation levels visiting and participating at the workshop for first time up to senior scientist returning to the workshop regularly was achieved and sparked lively presentations and discussion from different fields of biomedical MR research. This year graduate or undergraduate students could present their research ideas or results of their work to international audience again (total number of presentations 30 in six scientific sessions, see attached program of the workshop). Students especially valued the possibility to give their talks within this motivated and friendly platform.

The key-note of scientific part of the meeting was given by senior guest lecturers Dr. L.Trantírek talking about high resolution nuclear magnetic resonance spectroscopy in vitro and in situ in living cells. It drawn special attention and sparked intensive lively discussion. Recently appointed head of MR Physics at MUW, Prof. M. Zaitsev presented the vendor independent platform for MR sequence design, conception and simulation (PulsSeq). Further, short presentation covered most of the topics related to magnetic resonance. The focus was laid on:

i) Dynamic MR spectroscopy and spectroscopy imaging: Cardiac MRI/MRS
ii) Functional MR imaging MRI/MRS: Data processing on different platforms
iii) Molecular MR spectroscopy and imaging:
iv) Advances and new approaches in MR hardware and software – coil design
v) Parametric quantitative MRI/MRS characterization: fat-water MRI
vi) Artificial intelligence algorithms

The complete program of the workshop with the title of presentations and list of participants is attached (Program_Aktion_2021.pdf).

The workshop further aimed at discussions and consultations of problems with MR sequences and data evaluation, design and construction of radiofrequency coils,

unification of quantitative parameters (such as definition of Signal to noise ratio) for determination of MR image quality and preparation of joint projects.

The workshop was complemented by short hiking tours to nearby Luhačovice spa and social event for all participants in the evening of Sep 14th. Total price for accommodation of participants from Austria and Czech Republic, hire charge of conference room, sound system, and transport participants and data projector and payment for hotel service (meals etc) was slightly lower than was approved budget. Another small part of the expenditure is on passenger transport from the Czech Republic (not all of them reported).

In short, the Czech-Austrian workshop on magnetic resonance imaging and spectroscopy 2021 was successful and its total expenditure did not exceed the set budget.

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