

Second Workshop of the Muon $g - 2$ Theory Initiative

18 - 22 June 2018

Helmholtz-Institut Mainz, Staudinger Weg 18, 55128 Mainz, Germany

Webpage: <https://wwwth.kph.uni-mainz.de/g-2/>

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First Circular

Muon $g - 2$ Theory Initiative

In the coming years, experiments at Fermilab and at J-PARC plan to reduce the uncertainties on the already very precisely measured anomalous magnetic moment of the muon by a factor of four. The goal is to resolve the current tantalizing tension between theory and experiment of three to four standard deviations. On the theory side the hadronic corrections to the anomalous magnetic moment are the dominant sources of uncertainty. They must be determined with better precision in order to unambiguously discover whether or not new physics effects contribute to this quantity.

There are a number of complementary theoretical efforts underway to better understand and quantify the hadronic corrections, including dispersive methods, lattice QCD, effective field theories, and QCD models. The Muon $g - 2$ Theory Initiative was formed in order to facilitate interactions between the different groups through the organization of a series of workshops to discuss, assess, and compare the status of the various efforts, and to map out strategies for obtaining the best theoretical predictions for these hadronic corrections in advance of the experimental results.

Scientific Program

The main purpose of the workshop at Mainz is to pave the way for the writing of a **white paper** by the end of 2018 that will summarize the current status of the Standard Model prediction of the muon $g - 2$, with a particular focus on the hadronic contributions and their uncertainties. This value can then be compared with the first result from the Fermilab experiment E989, that is expected in early 2019.

Monday, June 18 - Thursday, June 21 there will be invited mini-reviews on specific topics, which summarize the current status of the theory, also based on the results presented at the dedicated workshops on the hadronic vacuum polarization (HVP) at KEK and hadronic light-by-light scattering (HLbL) at UConn earlier this year. Furthermore, there will be talks on new results that have been promised by several groups in time for the Mainz workshop. There will be ample time for discussions on the structure and the content of the white paper. It is planned to select an editorial team to work on the white paper in the months after the workshop. There will also be time for a few contributed talks.

Friday, June 22 will be dedicated to work by the **editorial team** on the white paper with a detailed planning of the writing in the coming months and to start drafting some sections.

Details of the scientific program and the time schedule will be published on our website.

Workshop venue

The workshop will take place at the **Helmholtz-Institut Mainz (HIM), Staudinger Weg 18, 55128 Mainz, Germany**. We have also reserved several smaller conference rooms in the same building for meetings of smaller groups of participants to discuss specific topics and work on the white paper. This new building is adjacent to the Institute of Nuclear Physics on the campus of the Gutenberg University Mainz. Maps and detailed directions will be provided on our webpage.

Registration

Please register **before May 7, 2018** at the webpage:

<https://indico.him.uni-mainz.de/event/11/registration/>

Let us know on the registration page **whether you would like to join the editorial team**, i.e. you are willing to contribute substantially to the writing of the white paper in the months after the workshop and participate in the meeting of the editorial team on Friday, June 22.

On the registration page you can also submit a proposal for a **contributed talk** and you can indicate **whether you require financial support**. Funding is available for the local costs for accommodation (hotel with breakfast), lunch at the university cafeteria and transportation within Mainz for a limited number of participants who have difficulties to support their stay. Please also give your preferences about the accommodation in Mainz (see separate section below).

Accommodation

When you register **before May 7, 2018**, please choose whether you want to find your own accommodation in Mainz or whether the Local Organizing Committee should reserve a room for you in some hotel near the Mainz Main Station for a reduced rate. After the registration deadline, there is no guarantee that rooms will be available in these hotels at the reduced conference rate.

Travel Information

Detailed information will be posted on our webpage shortly.

Steering Committee of the Muon $g - 2$ Theory Initiative

Gilberto Colangelo (Bern)
Michel Davier (Orsay)
Simon Eidelman (Novosibirsk)
Aida El-Khadra (Illinois)
Christoph Lehner (BNL)
Tsutomu Mibe (KEK, J-PARC E34 experiment)
Andreas Nyffeler (Mainz)
Lee Roberts (Boston, Fermilab E989 experiment)
Thomas Teubner (Liverpool)

Local Organizing Committee

Achim Denig
Fulya Gönülkirmaz-Mank (Conference Secretary)
Georg von Hippel (Scientific Secretary and Webmaster)
Harvey Meyer
Andreas Nyffeler
Marc Vanderhaeghen
Hartmut Wittig (Chair)

Supported by:

