MOLLER Collaboration Structure (DRAFT, February 21, 2021)

This document describes the basic elements of the MOLLER collaboration structure.

A brief review of the historical evolution that led to the current structure is outlined below. Initial development was carried out by the ad-hoc "constitutional board" (CB) consisting of Krishna Kumar, Mark Pitt, Kees deJager, Gordon Cates and David Armstrong in a series of phone meetings in March and April 2012. This basic structure was approved in a teleconference on Sept. 10, 2012 by the Steering Committee consisting of David Armstrong, Dave Mack, Roger Carlini, Gordon Cates, Thia Keppel, Kees deJager, Michael Gericke, Javier Gomez, J-P Chen, Yury Kolomensky, Kent Paschke, Krishna Kumar (Chair), Frank Maas, Bob Michaels, Mark Pitt, Greg Smith, Paul Souder and Wim van Oers. The steering committee ceased operation at that point, with management issues for the experiment since then being handled by the Executive Board.

After Steering Committee adoption, the draft structure document was circulated to all MOLLER institutional representatives on Sept. 24, 2012. The representatives were requested to provide feedback and distribute it to other members of their institution as they saw fit. Further work by the Executive Board was done in January 2015, resulting in a draft document prepared in March 2015; the collaboration has been operating under these guidelines since.

By January 2021, MOLLER has become a project with funding from the Department of Energy (DOE MOLLER Major Item of Equipment – DOE MOLLER MIE), National Science Foundation (MOLLER-NSF), and Canada Foundation for Innovation (MOLLER-CFI) and a DOE MOLLER MIE project manager Jim Fast. Further refinement of the March 2015 document was done with feedback from the Executive Board and full collaboration.

This document provides the basic framework and parameters for the collaboration structure. It leaves some issues open to be determined by the governance entities established here, and it is understood that a set of collaboration by-laws will need to be generated adhering to the guidelines established in this document.

An organization chart showing the collaboration structure and how it relates to the MOLLER project structure is shown in Figure 1. Here a solid line indicates reporting to the box above, a solid line with an arrow indicates oversight role, while a dashed line indicates an advisory role.

Institutional Board (IB):

The IB controls the overall framework of the collaboration. It is the ultimate policy forming body, including membership, admission of new institutions, organization of elections, development of publication policies, establishment and maintenance of a

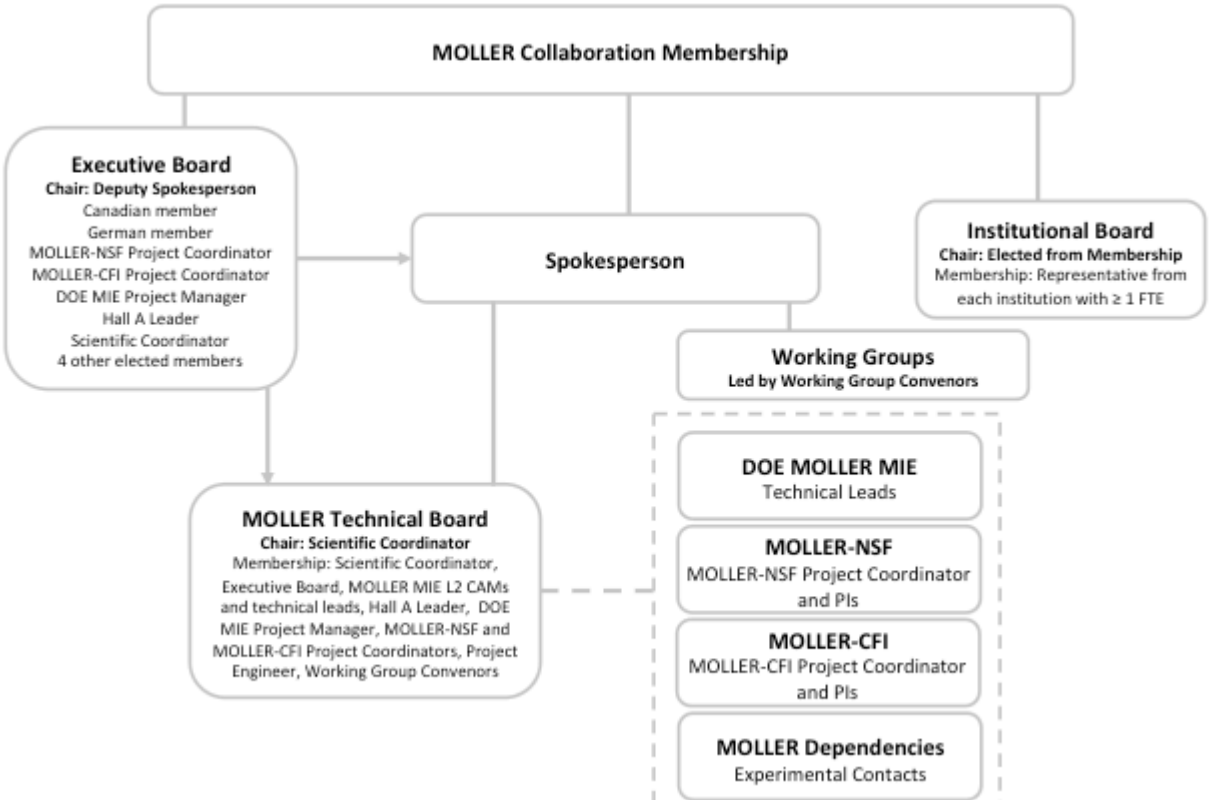

Figure 1: MOLLER Collaboration organization chart and relation to MOLLER project

speakers board, development, maintenance, and amendment of by-laws, etc. All institutions participating at the level of about one FTE total (integrated over all levels) will have one IB representative. The IB chair is elected by IB members. It might make sense for some smaller institutions to be represented as a bloc by one IB member. The IB will be responsible for a more explicit definition of “one FTE” and how smaller institutions can be represented as a bloc.

The first chair of the IB will be Jim Napolitano with an initial 2 year term. After that initial term, the IB will elect a chair from among its membership. The procedure for that election will be developed by the IB as part of their by-laws development.

Executive Board (EB):
The EB advises the spokesperson on scientific, financial and organizational choices and policies and provides oversight on all matters pertaining to the day-to-day running of the experimental collaboration and its activities pertaining to the experiment. The EB establishes procedures for making strategic choices, for assigning various leadership roles as specified in this document and the by-laws, and for operating the experiment. The EB may establish ad hoc or standing committees as needed. The EB should work by building consensus but perhaps major decisions might require a majority vote. The Chair of the EB is elected by the current EB membership, and is the Deputy

Spokesperson. The Chair is responsible for running EB meetings (setting agenda, minutes etc).

The EB membership should have one Canadian member, one German member, the MOLLER-NSF Project Coordinator, the MOLLER-CFI Project Coordinator, the DOE MOLLER MIE Project Manager (PM), Hall A Leader, Scientific Coordinator, and four other members who are periodically elected by the collaboration. The membership of the first EB was proposed by the SC (see below). All appointed (and subsequently elected) EB members and the spokesperson have one vote each.

The current membership of the EB is: Krishna Kumar (spokesperson), Mark Pitt (chair and deputy spokesperson, MOLLER-NSF PC), Jim Fast (DOE MIE PM), Juliette Mammei (Candian member), Thia Keppel (Hall A Leader), Frank Maas (German member), David Armstrong, Paul Souder, Kent Paschke. This membership was suggested by the Steering Committee with two exceptions. Kent Paschke replaced Gordon Cates with unanimous consent of the EB on Feb. 10, 2014. (At that same time, Mark Pitt was elected by the EB as chair and deputy spokesperson.) Michael Gericke was added in March 2021 to represent the CFI project as the Project Coordinator. The current periodically elected members of the EB will serve initial 2 year terms, at the conclusion of which elections will be held for those positions. The procedure for those elections and any plans for future evolution of the EB when the run phase of the experiment starts will be determined by the current EB in consultation with the IB.

Spokesperson:
The spokesperson oversees all aspects of the experiment. The spokesperson will be the principal point of contact between the collaboration, JLab management and the larger physics community. The spokesperson will be advised by the EB and is expected to discuss all major decisions and any significant external interactions with the EB. The spokesperson has close communications with lab management, funding agencies, and the DOE Nuclear Physics Facilities and Project Division via the PM.

It is noted that the principal oversight of the spokesperson is provided by the EB. The EB has the authority to request that an election be initiated to elect a new spokesperson. The timing of such an election would be initiated by a motion within the current EB membership that is supported by a 2/3 rd majority. If/when such an election is held, all qualified MOLLER collaborators would each get one vote. More detailed mechanics on the issue of the timing and triggering of spokesperson elections will be established at a later date by the IB.

Krishna Kumar is currently serving as the spokesperson.

Scientific Coordinator (SC):
The SC will chair the Technical Board and provide support and advice to the PM during the construction and commissioning phases of the experiment. This role potentially

could transition to an overall run manager role during the physics phase of the experiment. This transition will be further developed at a later point by the EB. The SC is expected to be located onsite at JLab or close vicinity once COVID restrictions are lifted (ie. senior lab scientist or faculty member at the lab on sabbatical or within easy driving distance), and the MOLLER project should be the major activity of the SC during their term. The SC will be appointed by the EB with a nominal term of 6 months that is renewable under mutual agreement between the EB and SC. The EB can remove the SC via a 2/3rd vote of its membership.

Until Summer 2021, the SC can be remote, since Jefferson Lab is under remote operations due to COVID-19. It is proposed the Krishna Kumar serve in this role until Summer 2021.

Technical Board (TB):

The TB will have a group of senior collaborators who represent the full range of required technical expertise. The membership of this group includes the Scientific Coordinator, EB, the MOLLER DOE MIE L2 CAMs and technical leads, the Hall A Leader, the DOE MIE project manager (PM), the project coordinators for MOLLER-NSF and MOLLER-CFI, the Project Engineer, the Working Group convenors. The TB advises the PM on all aspects of the Project including changes in cost, scope or schedule. Its role spans the projects, providing integrated technical oversight across the entire MOLLER enterprise, from design through transition to operations. The TB membership can be periodically adjusted by the EB as the situation warrants.

The Scientific Coordinator will serve as the chair of the TB. Oversight of the SC and TB will be provided by the Spokesperson and the EB.

Based on the above criteria, the first set of TB members are: Scientific Coordinator, EB (Krishna Kumar, Mark Pitt, Jim Fast, Juliette Mammei, Thia Keppel, Frank Maas, David Armstrong, Paul Souder, Kent Paschke), L2 CAMs (S. Covrig, R. Fair, C. Zorn, J. Gomez, R. Michaels), L2 technical leads (D. Meekins, J. Mammei, M. Gericke, D. Armstrong, C. Gal, D. McNulty, P. King), Hall A Leader (Cynthia Keppel), DOE MIE Project Manager (Jim Fast), MOLLER-NSF PC (Mark Pitt), MOLLER-CFI PC (Michael Gericke), Project Engineer (R. Wines), Working Group convenors (G. Cates, K. Paschke, M. Pitt, S. Covrig, J. Mammei, M. Gericke, D. McNulty, D. Armstrong, N. Liyanage, C. Gal, D. McNulty, P. Souder, J. Napolitano, P. King, R. Michaels, R. Beminiwattha, Y. Kolomensky)

Working Groups (WG) and Convenors:

The collaboration also has a working group structure. The WG are initially focusing on the physics requirements and their subsequent focus will be on individual subsystem commissioning and performance once the construction project is completed. The WG and convenors are:

- Polarized Source: G. Cates (Virginia) and K. Paschke (Virginia)
- Beam Instrumentation: M. Pitt (Virginia Tech)
- Hydrogen Target: S. Covrig (JLab)
- Spectrometer: J. Mammei (Manitoba)
- Integrating Detectors: M. Gericke (Manitoba) and D. McNulty (Idaho State)
- Tracking Detectors: D. Armstrong (William and Mary) and N. Liyanage (Virginia)
- Hall Integration: C. Gal (Stony Brook), D. McNulty (Idaho State), and P. Souder (Syracuse)
- Polarimetry: K. Paschke (Virginia) and J. Napolitano (Temple)
- Electronics/DAQ/Offline: P. King (Ohio) and R. Michaels (JLab)
- Simulations: R. Beminiwattha (Louisiana Tech)
- Physics Extraction: Y. Kolomensky (UC Berkeley)