Dear Young-Kee and SNOWMASS Steering Committee, 31 May 2020

Laura, John and Kevin met this week and we later conferred with Jeter to draft the following list of co-conveners which we offer to you for vetting. We draw upon individuals with experience in installing and operating a wide range of experiments in the underground.

Six sections for Underground Laboratories and Infrastructure were proposed and we have sought co-conveners for these sections. In addition, some Frontiers have offered liaisons, also noted below.

UF1 - Neutrinos

The Neutrino Frontier Conveners have suggested **Albert de Roeck** as a liaison from the Neutrino Frontier to Underground Facilities & Infrastructure. We have not confirmed this liaison at this time, but do intend to have a liaison between the two Frontiers.

Accelerator-based Neutrinos - this area will be heavily involved with LBNF/DUNE activities as well as Hyper-K in Japan.

*Our primary suggestion is **Tim Bolton** (Kansas State University), spokesperson for DUNE. Rationale: DUNE will dominate the discussions of underground facilities and we need excellent communications with the DUNE collaboration and Project.*

*Our secondary suggestion is **Gina Rameika** (FNAL). Gina has been involved with long baseline neutrinos dating back to the BNL-FNAL studies and understands the physics exquisitely. She oversaw the US ProtoDUNE efforts last year which met design goals. She is well integrated into DUNE science and Project.*

Non-accelerator Neutrinos - this area includes astronomical neutrinos (supernova, solar, atmospheric, background neutrinos) which are part of the DUNE scope, and for which there is active discussion for additional designs and efforts.

*Our primary suggestion is **Hank Sobel** (UCI). Hank has been involved with underground neutrino detectors for decades (Kamiokande, Super-K, DUSEL, and DUNE). His knowledge of detectors and the physics is outstanding.*

*Our secondary suggestion is **Josh Klein** (Penn). Josh remains very active in astronomical neutrinos, was instrumental in SNO's successes, and has a broad understanding of neutrino physics and what is needed by underground experiments*

Neutrinoless Double-Beta Decay - while DBD is Nuclear Physics scope in the US, HEP is significantly invested in this field and several experiments from other Frontiers may have important contributions to this area of study. Furthermore, next generation neutrinoless double decay experiments are of a sufficient scale to require substantial space and facilities within underground facilities, likely requiring advance planning and coordination. The selection process among the proposed technologies is actively being advanced within DOE-NP and we felt it wise to steer clear of proponents of the major US efforts (nEXO and LEGEND). We have two primary nominations to assist with this area.

*Our suggestions are **Patrick Decowski** (Nikhef and UA) and **Daniela Speller** (Johns Hopkins). Both are involved in European DBD experiments and have an excellent background in underground experiments in general and in DBD in particular. We anticipate there being work for both of them dealing with the different experiments and personalities.*

UF2 - Cosmic Frontier

The Particle Dark Matter conveners have named **Hugh Lippincott** and **Jody Cooley** as Liaisons to work with our co-conveners, whose participation we enthusiastically endorse. This area includes the Generation 3 Dark Matter detector named in the previous SNOWMASS and P5 recommendations as well as the growing interest in low mass and very low mass "WIMPs". **Eric Dahl** has been named as liaison from the Instrumentation Frontier side to Underground Facilities & Infrastructure. Because of the interest in this field and the variety of technologies we believe there is work for two.

*Our suggestions are **Rouven Essig** (Stonybrook) and **Kaixuan Ni** (UCSD). Rouven is a theorist who has an excellent history of working with experimentalists and understanding a wide range of technologies and Dark Matter models. Kaixuan has wide experience working with LXe detectors in Gran Sasso and China. We feel that Ruben and Kaixuan, working closely with Hugh and Jody will be able to handle the growing interest in particle Dark Matter and the issues with supporting these experiments with a wide range of requirements.*

UF3 - General Underground Detectors

This area includes a selection of novel detectors and new proposed users for underground detectors including Quantum Information and Gravitational Waves detectors.

*We suggest two co-conveners for this area. **Maurice Garcia-Sciveres** (LBNL) who heads a QIS effort in Berkeley and **Laura Cadonati** (Georgia Tech) who has worked underground with neutrino experiments and now is focused on gravitational wave detection.*

UF4 - Supporting Capabilities

This area includes supporting measurements and capabilities that require underground space and also capabilities that are increasingly required by next generation experiments. These include low background assay, radon-emanation techniques and assays, and dust and radon-daughter (^{210}Pb) deposition control. Because of the wide range of assays and technology we propose three co-conveners.

*Our suggestions are **Richard Schnee** (SDSM&T), **Brianna Mount** (BHSU), and **Alvine Kamaha** (Albany). Richard is a world-leading expert in radon-emanation assay and production of low-radon environments. Brianna oversees the Black Hills Underground Campus providing a wide range of radioassay techniques. Alvine recently led the campaign to control dust and Rn-daughter depositions for the LZ assembly work.*

UF5 - Synergistic Research

We do not anticipate a lot of interaction with this area, but understanding plans and techniques is beneficial for facilities as they plan their research efforts.

Our suggestions are **Tullis Onstott** (Princeton) for Geomicrobiology, **Pat Dobson** (LBNL) for Geomechanics and Coupled Processes, and **Daniel Robertson** (Notre Dame) for Nuclear Astrophysics.

UF6 - Facilities and Infrastructure Plan

The process of creating a comprehensive plan is still being discussed by Laura, John, Jeter and Kevin. We are not ready to offer our final recommendations yet.

Our list of suggested co-conveners represents a diverse group, with a good balance of women, university, US and international participation. We look forward to discussing these nominations with you, as there is much about their qualifications we can not fit into a short letter. We have NOT approached any of these individuals, so there remains an element of risk of refusal to participate.

Sincerely,
Kevin Lesko
Laura Baudis
John Orrell
Jeter Hall