Mandate for working group on use of novel accelerator schemes

An initial stage of CLIC at 380 GeV can cover precision measurements of the Standard Model parameters. Increasing the energy with CLIC technology in stages towards ~3 TeV is possible, beyond this range costs, power and dimensions become prohibiting.

Novel accelerator techniques have the promise of providing very high accelerating gradients. There are however numerous challenges of using them in linear collider installations in the foreseeable future, where high energy and high luminosity electron-positron collisions are needed at "reasonable" cost and power levels. Since new physics energy scales currently are not known but are being pushed upwards by LHC results, it seems prudent and advisable to carry out initial studies of how to implement very high energy extensions of linear collider installations using novel accelerator schemes and avoid incompatibilities if at all possible. Such studies could provide implementation guidance for CLIC and ILC technology based machines as well as new interesting long term perspectives for LC installations. The studies can also help to identify R&D priorities for novel accelerator schemes by considering their compatibilities with CLIC and ILC technologies.

Within the Linear Collider studies at CERN a working group, with several external experts, is mandated to consider how an initial CLIC machine, being drivebeam or klystron driven, can be extended in energy, focusing on novel accelerating schemes to provide such extensions. As there are already many existing activities world wide pursuing the technical developments of novel accelerator methods a natural starting point is to review and assess these with the help of invited experts as needed, discuss their limitations, timeline and promise with these experts, and rather concentrate the working groups efforts on the potential use of these in Linear Collider implementations as future stages of the existing plans for Higgs factory types of installations.

The group should consider how much of the initial stage(s) machine parts and infrastructure can be used, consider and map out possible choices for novel technologies, identify conflicts with the schemes proposed today for the initial machine or infrastructure conflicts. The outcome should be a report (format and form to be discussed) where the possible extensions - if any - are outlined. The implications on the first stage project plan for such extensions, and an R&D plan for the most promising options should be worked out in collaboration with the technical experts, focusing on what is critical for use of these technologies in an LC implementation. Dimensions, power and costs should be considered even though the precision levels will inevitably be limited. **This report should be concluded well in time for the CLIC implementation plan to be submitted the European Strategy process in early 2019, such that its main results can be included where appropriate.**

The initial composition of the working group, changes will be made as needed:
Erik Adli (chair), Daniel Schulte, Patric Muggli, Steinar Stapnes, Walter Wuensch, Alexej Grudiev, Igor Syratchev, Roberto Corsini, Steffen Doebert, Andrea Latina, Juergen Pfingstner, Rogelio Tomas, Philipp Roloff, Edda Gschwendtner, Massimo Ferrari, Jens Osterhoff.

The group will meet regularly (every 3-7 weeks) on Fridays 9-11 **in open meetings** - VIDYO transmitted - and the members will otherwise meet as needed to pursue the work.