**PERLE: Milestones – Timelines** Management Board draft 14.10.20

**Collaboration Agreements** signed: 12/20 - 3/21

**TDR** CDR (2017 – 1GeV), Concept (2020) and Delivery (2022)

 Prototypes for TDR: 1st. Cavity, HOM-use first cavity (CERN ok) cf FMs plan

 gun-beam end of 22,

 magnet prototype ? (specs) – Cremlin money. Magnet measurements

 BCOM prototype - BINP

**Experiments**‘ constraints (Workshop on Physics in early Spring 21)

 Very important

**Footprint of PERLE** at Orsay (Summer 21 – link time to start building/installing )

 Constraints + boundary conditions from and for Experiments,

 - gun with laser system, injector (booster, merger), polarisation

 - main ring: lattice fixed, cryomodule(s), arc magnets, spreader/combiner

 - power stations (rf, magnets), cryogenics arrangements,

 - control room, radiation protection and shielding, safety, dump and interlock system,

 - floor suitability/vibrations etc.

**Layout of the Machine and Infrastructure** (with the TDR, end of 22)

**Facility and Space for Reception Tests and Storage**

**Installation of ALICE gun** (starting January 22, order missing pieces in 21)

**Design of Injection Line and Dump**

 Design Review (December 20)

 Design for TDR (Spring 21)

 Gun Upgrade (concept for TDR 22)

 Technical Layout of Booster (2021)

 Merger Configuration (Magnet Design) 2022

 Beam Dump (2021)

**Dressed Cavity fabrication at Jlab** (first cavity: 2022, all 4 by 2024)

 See proposal by Frank Marhauser

**Adaptation of SPL Cryomodule: Assembly and Test**: IJClab with CERN + CEA (?) 2023/24

 (to be aligned with cavity production and tests)

 Integration into Cryomodule and Assembly

 Adapt design of power coupler (4 couplers exist, can be adapted CERN)

 High Power Test of fully equipped cryomodule, 802 MHz Clystron / IOT

 Test with 2 cavity and 2 “fakes” ??

 Cryogenics, Power ..

**Racetrack** (ERL Loop) – design finished for TDR (2022)

 Lattice and Matched Optics (250 and 500 MeV configurations)

 🡪 engineering design

 End-to-end simulations [independent simulation desirable / review]

 Spatial and magnet tolerance specifications

 Magnet specification and designs (Dipole, Quadrupole, h.o. magnets?)

 Cryomodule (see above)

 Spreader and Combiner

 Vacuum System

**Cost Estimates**

**Monitoring and Diagnostics**

**Data Acquisition and Control**

**Interlock** [Machine and Personelle Safety]

**Auxiliary Systems**

 Mechanical Support

 Fluids

 Power

 Shielding

**Cryogenics** (Plant and Distribution)

 Related to Main and Booster Cryomodules

 Layout for TDR

 Cryoplant – link to Industry

 **Authorisation for Operation**

 Radiation Safety Documents (2022)

**Phase 2** (to be described in TDR)

 Gun Upgrade to Higher Intensity

 Polarisation

 Cryomodule 2

 Dedicated Design based on Nr. 1

 Production (2025)

 Arc modification

 Experiments