Summary of the overall parameter discussions

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Outline

- Bunch parameters at injection into PBR and BR
- Positron production: layout and key parameters

Bunch parameters at injection into PBR and BR

parameter	Baseline	Alternative	Comments
Ring	PBR	BR	
Injection energy [GeV]	6	20	Lower energy is possible
Bunch population	2.1e10	2.1e10	3.4 nC
Bunch spacing [ns]	15, (17.5, 20)	15, (17.5, 20)	Minimum bunch spacing
Transverse emittances (RMS): ε_x,y [nm]	1.1, ?	1.3, 0.2	
Normalized transverse emittances (RMS): γε_x,y [um]	13, ?	50, 8	
Bunch length (RMS) [mm]	10	10	
Energy spread (RMS) [%]	0.1	0.1	
Injection scheme	Off axis injection: bunch train staking/ interleaving	On axis injection: Is bunch train interleaving possible?	Confirmation is needed on the BR injection scheme

Positron production: layout and key parameters

- Positron production (WP3) is the core of the injector complex. It connects all the subsystems (WPs).
- We started with definition of key parameters: driver beam energy and bunch population
  - Two main limitations in the positron production have been discussed: PEDD and dissipated power on the target
  - They will limit the number of bunches in the train and the repetition rate, respectively: positron production rate
  - **Conclusion 1:** One of the goals of the future design work should be to **increase positron production rate as much as reasonably possible**
  - The higher is the driver beam energy the better it is for positron production: higher positron production rate.
  - **Conclusion 2: Driver beam energy is the same as the nominal beam energy (i.e. maximum available energy in the injectors): 6 GeV for baseline and 20 GeV for the alternative. No reason to reduce it.**
- Next steps to define interface between WP3 and WP1 and WP4:
  - Driver beam parameters at the input to WP3
  - Positron beam parameters at the exit from the capture linac
  - Layout: baseline, alternative(s)
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