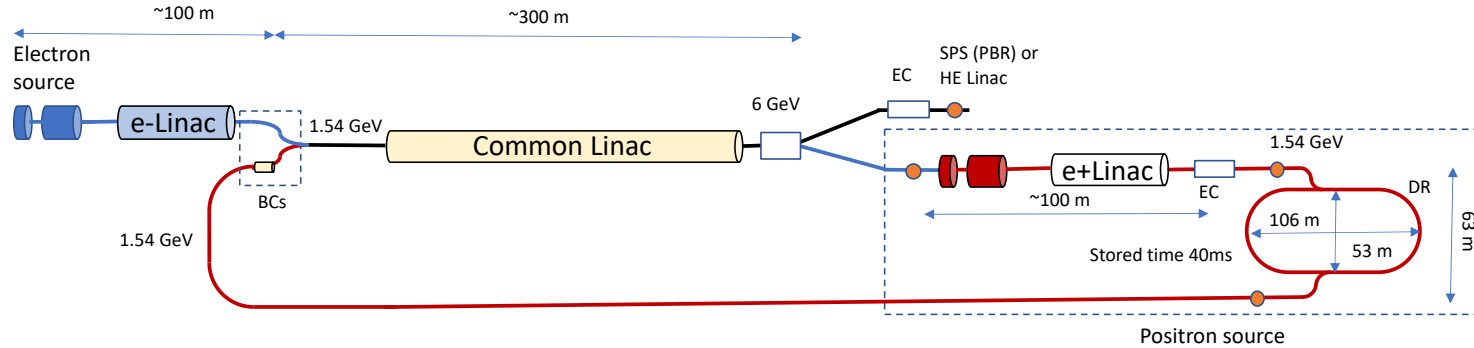


# (Pre-)Injector Layout and parameters



	Baseline	HE Linac	Unit
Ring for injection	SPS/PBR	BR	
Injection energy	6	20	GeV
<b>Bunch population both species</b>	<b>3.47 (5.55)</b>	<b>3.12 (5.0)</b>	<b>1E10 (nC)</b>
Repetition rate	200	200	Hz
Number of bunches	2	2	
<b>Bunch spacing</b>	<b>17.5-100</b>	<b>17.5-100</b>	<b>ns</b>
Normalized emittance (x, y) (rms)	50, 50	50, 50	mm.mrad
Bunch length (rms)	~1	~1	mm
Energy spread (rms)	<0.1	<0.1	%

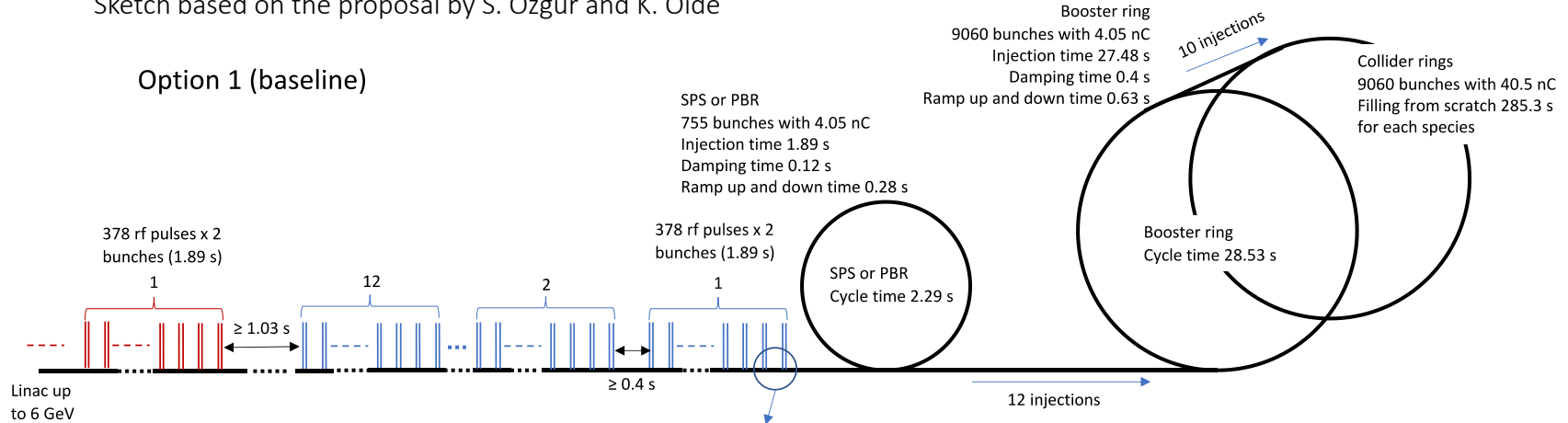
- Still two options: SPS or High-energy Linac to rump up the beam energy to 20 GeV
- 2-bunchs at 200 Hz, time separation few tens of ns, can fullfill the specification for the collider rings
- Common linac at 200 Hz (electrons) + 200 Hz (positrons) when positron are generated
- Specifications are fullfilled for the electron bunch (beam dynamics for the e-linac and common linac well advanced), still pending decision on the rf structures and bunch compressor
- Electron source: an injector based on a photocathode RF gun can provide electrons for both ring injection and positron production
  - The 100% amplitude modulation of the electron and positron charge required for injection into the collider ring could be provided from an optical modulator in the laser system – under investigation
- e+linac: rf design well advanced, beam dynamics on-going
- Positron source: yield very promising but a more accurate investigation of the DR acceptance is on-going. Two options still open for the AMD: HTS solenoid or Flux concentrator.
- Energy compression before DR under investigation
- The concepts for the DR and the return transfer line are well established

→ More details in the FCCee Injector sessions on Tuesady afternoon, there are 10 talks!!

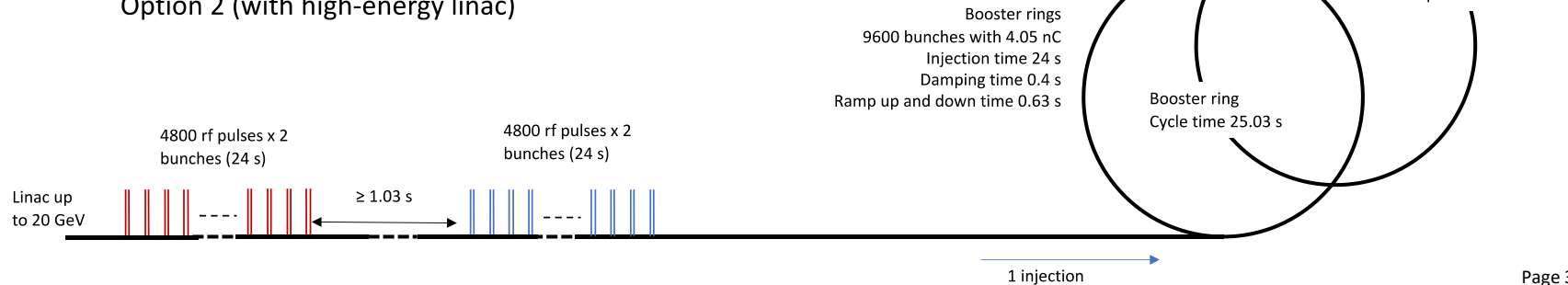
# Filling pattern for the Z-mode

Sketch based on the proposal by S. Ozgur and K. Oide

## Option 1 (baseline)



## Option 2 (with high-energy linac)

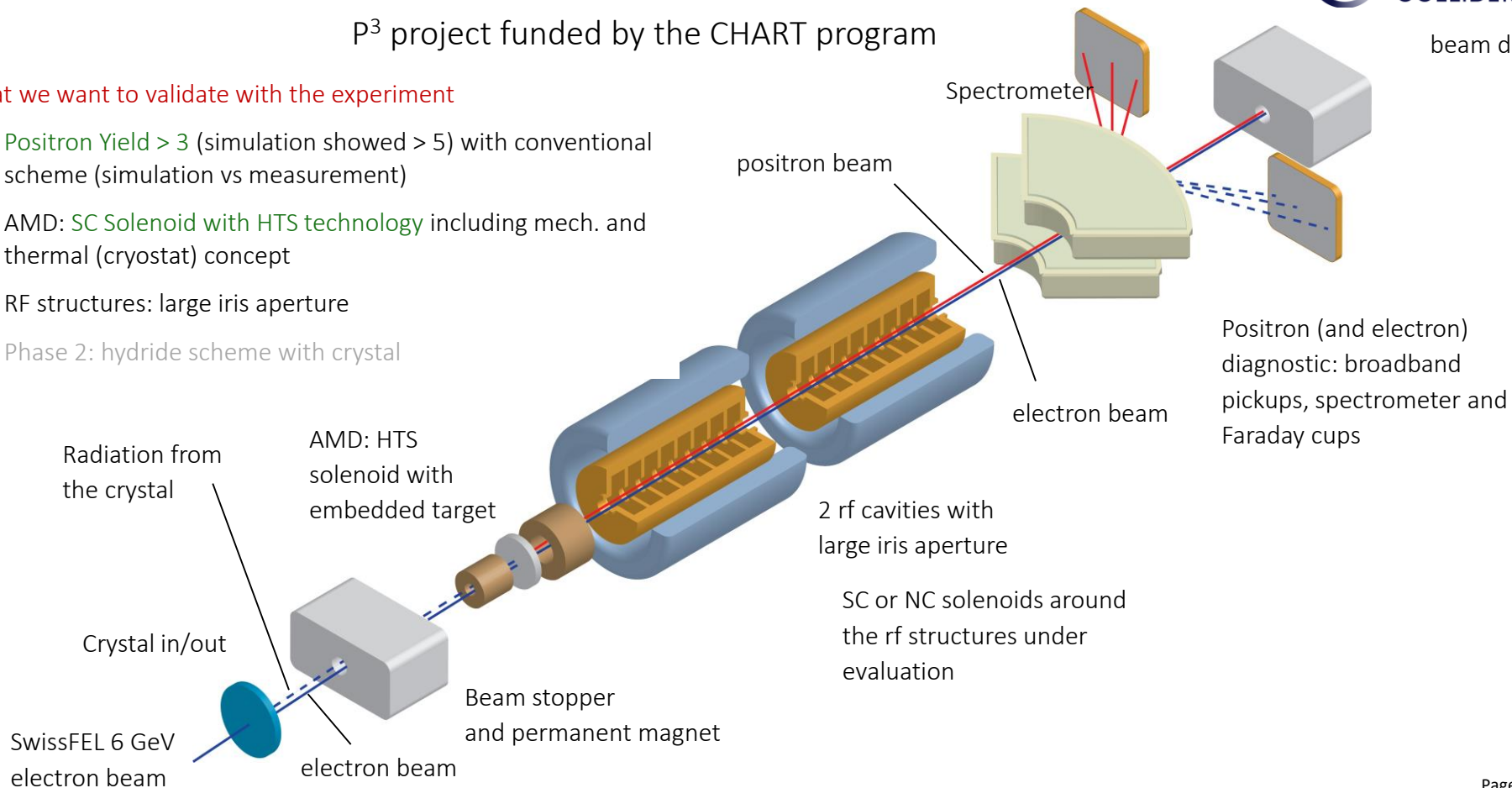


P<sup>3</sup> project funded by the CHART program

beam dump

## What we want to validate with the experiment

- ✓ Positron Yield > 3 (simulation showed > 5) with conventional scheme (simulation vs measurement)
- ✓ AMD: SC Solenoid with HTS technology including mech. and thermal (cryostat) concept
- ✓ RF structures: large iris aperture
- ✓ Phase 2: hydride scheme with crystal





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