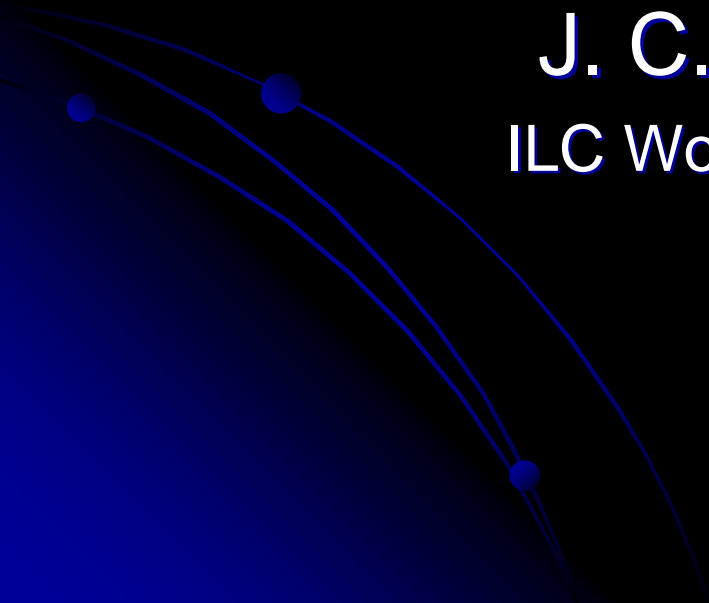


ILC Commissioning Thoughts

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ILC Workshop, Snowmass, CO.

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Commissioning Questions

- What are the goals: instrumentation and control, systems (dr, bd, etc.), luminosity, quick start-up, minimum construction schedule, milestone (e.g. no detector money until collision demo.....) ?.... need to decide, need to do it all
- What are the beam requirements: depends on goals, looser is better, single large emittance bunch easier than stable, lo emit train
- What are the machine requirements: how well does the dr need to work to get going on the linac?

General Guidelines

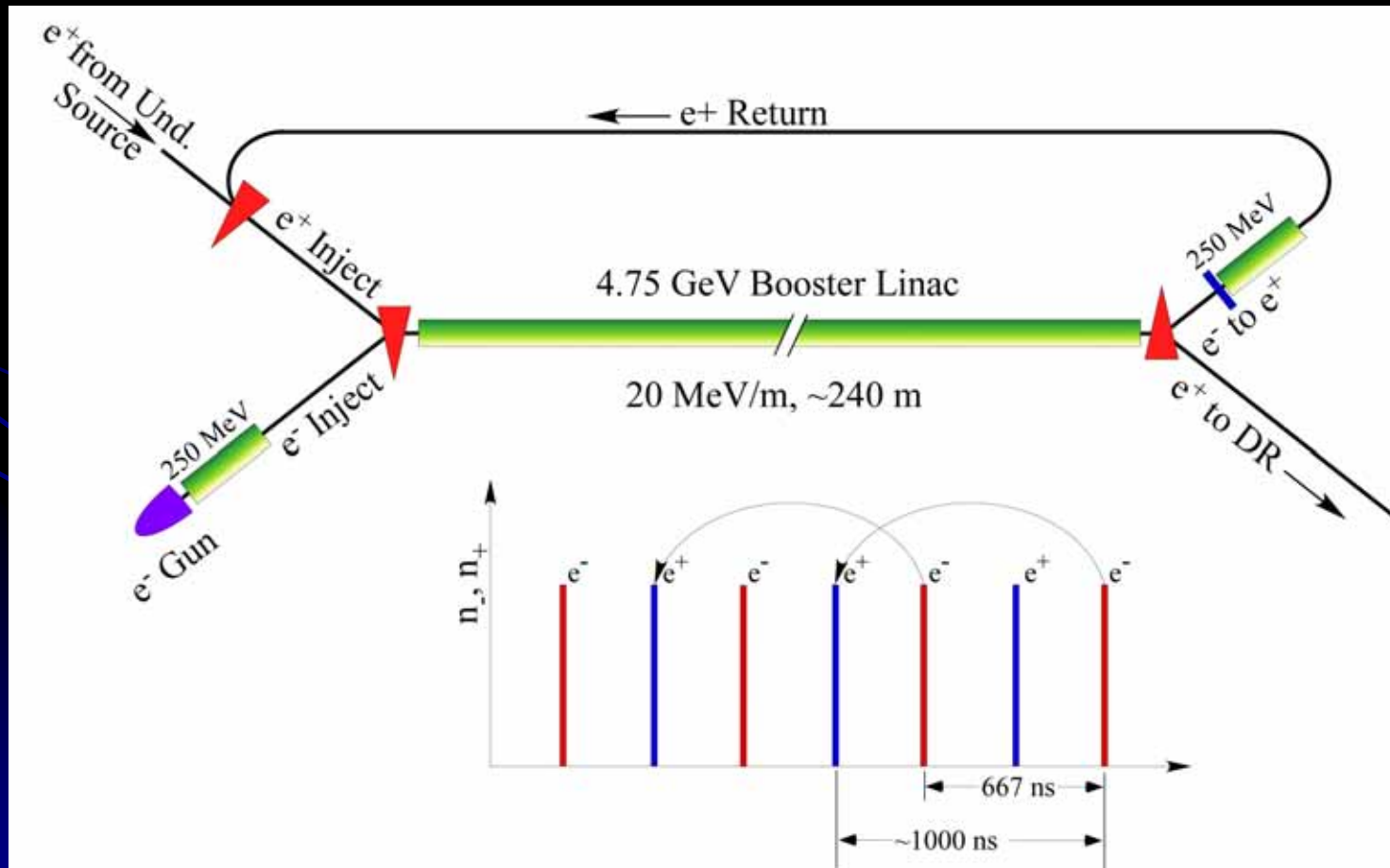
- **Earlier is better than later: as loose of beam specs as possible**
- **Control system needs to be available, including beam control applications (auto-steering, feedbacks, emittance measurements, data correlation....)[use control system for equipment checkout as much as possible to both gain experience and to push control system development**
- **Instrumentation generally comes up with the beam, checkout is certainly step one**
- **Operations Staff: hire early, involve with installation checkout and equipment acceptance**

Commissioning Chronology

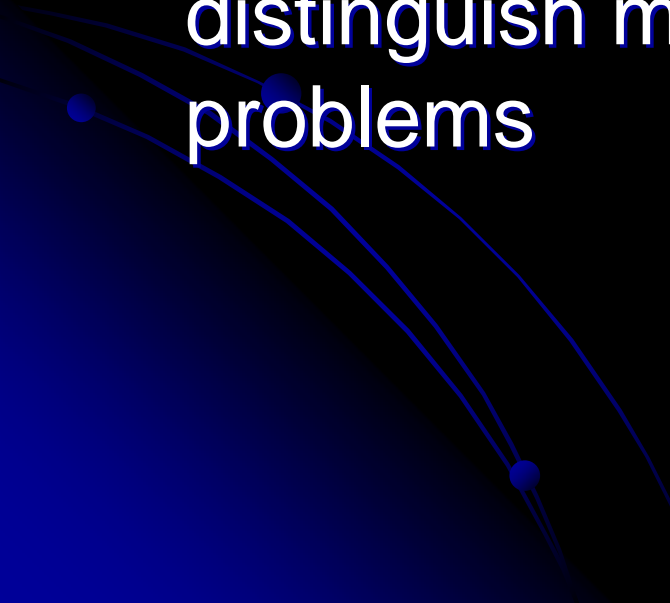
- Electron Systems followed by Positron Systems
- Staged Beam Capability (single bunch then trains; stability, emittance, beam power to follow)
- Commission as much in parallel as possible: push beam as far as possible as early as feasible: find and solve multiple problems at the same time...

Electrons for Positrons

- Use electrons to commission positron systems at least thru DR: full intensity, $\frac{1}{2}$ current



Electrons for Positrons

- Polarity reversal of magnets (bpms?)
 - Polarized electrons required for e- on e- and γ - γ options
 - Low emittance of electrons used to distinguish machine problems from beam problems
- 

What's Next

- Machine should bang on
- Commissioning should not take as long as the construction
- Set aggressive commissioning schedule, figure out resource requirements (staff, schedule, equipment, software), roll into ILC project planning (OPS vs. Constr?)
- What do we want to accomplish in regards to commissioning in this workshop?