# Questions from Russel

1. I’m concerned that the seed laser is under-specified. It might have narrow linewidth, but the real measure is whether the amplitude is constant with time. If there are poorly suppressed adjacent modes, the amplitude could be varying and would hurt performance. In fact, the laser used so far appears to be running on multiple modes, so the performance with a constant-amplitude laser might be better, up on a higher curve than the “2mJ for saturation” one experimentally measured so far.
2. There should be machine protection against SBS, which could cause damage and down time, so there should be appropriate detectors. Also against unwanted lasing oscillation and back reflections. Diodes for backward-going light would be good. A diagnostic for SBS is needed, such as a scanning Fabry-Perot, which is commercial.
3. With the system in a poorly temperature controlled environment (estimated 20 degrees variation), and with multiple different metals involved in holding the laser, there might be thermal pointing drift in the output beam. There should possibly be a pointing control loop that uses the beam position monitors and the piezo mirrors.

# Questions from Yun

1. The key features of the laser system design include temporal structure formation, multiple-reflection optical cavity, and beam spatial profile shaping. Based on the laboratory demonstration and initial commissioning results, the design is successful and the laser system is very promising to meet the neutralization requirement for the laser notcher. The design concept can be used in other applications in accelerator facilities where a laser based high efficiency H- neutralization is required.
2. The plans of quadrupling the laser pulse energy mainly rely on a more stable seed laser source and suppression of instabilities and/or excessive pulses created in previous fiber amplifiers. Can one look into the option of using single frequency, narrow line width fiber laser instead of diode lasers as the seeder? The Stimulated Brillouin Scattering in the fiber amplifier is currently considered to be the primary source of instabilities in the amplification process. On the other hand, a weak optical reflection from the downstream optics/fiber surface can also cause instabilities especially at high gain. Is it possible to experimentally investigate the origin of the observed instabilities?
3. The present instrumentation is very well designed to fit in the limited space. Since fiber amplifiers are very vulnerable to the empty input, can one considers to install an electronic shutter between the last fiber amplifier and the RBA?
4. Spares of parts for an operational system are inevitable. Before generation of a list of spares, it might help to list the lifetime of key components (eg. pumping diode bar/stack) to get a reasonable estimation of the cost and expected frequency of parts replacement.