November 1, 2012

Dear Ian,

We are in need of several magnetic devices, called phase shifters, for use in our Linac Coherent Light Source project. These devices add path length to the electron beam trajectory, so the accompanying light wave can get further ahead of the electron beam. The phase shifters consist of a sequence of permanent magnets which make an “s” in the electron beam trajectory. The magnet arrays ideally have zero first and second field integral. A schematic of the magnet array for the strongest phase shifter is attached. The sketch includes magnet block dimensions “a” and “b”, and spacer dimension “s”. The gap must be adjustable, with a minimum gap of 10 mm. The blocks should be made of NdFeB and have Br larger than 1.2 T. The maximum force on each magnet array is roughly 2000 pounds.

We were wondering if Danfysik can build such an array, and roughly how much it would cost. We are at the very early stages of a project to add these phase shifters to the LCLS. At this time, we only need to know whether such a design is technically feasible and we need a budgetary cost estimate. With this information, we can approach the SLAC management for funding for the project. A more detailed design specification would then follow.

Thank you for your assistance in helping us get this project started.

Best Regards,

Zack Wolf

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