

**Subject:** Re: further PD array modifications

**From:** Peter King <pking@ligo.caltech.edu>

**Date:** 8/20/2013 6:54 AM

**To:** Jan Hendrik Pöld <jan.poeld@aei.mpg.de>

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Hi Jan,

Not that my opinion counts for anything but below are my thoughts on the matters you raise.

On Mon, 19 Aug 2013, Jan Hendrik Pöld wrote:

about the QPD and thought it would be good to lift that as well. The problem with it in the current design is that it is not in the same plane than the 8 main PDs.

Again, the QPD is there as an alignment tool for building the array. It was not put there for pointing information on the PDs. It happens that it can provide that information but that is not its primary function.

Raising the QPD now would involving eliminating any mechanical resonances introduced by the mechanical structure. You would also have to worry about the lever arm that the QPD is on. My guess is that a stiffer structure would result in a weight penalty.

... Furthermore the transmission of the mirror the QPD is facing (upper elevator mirror) should be changed to 1% in order to be able to monitor a beam during initial alignment (100mW in main beam ==> 10uW on QPD with 1% mirror).

So instead of changing resistors for \$1 ea, you want to change the optics at a cost of about \$5k-10k? I do not have this sort of budget flexibility.

Peter