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High power fibered electro-optics components

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We want to design a fibered electro-optic modulator and a fibered Faraday isolator able to withstand power greater than 100W. The aim of such components would be to simplify the path between the laser, possibly a fiber laser, and the under vacuum injection bench. By doing that we will reduce in particular the beam jitter noise.

The main difficulty is about the fiber itself: how to keep a good beam quality (TEM00, polarization, noises...) while avoiding all the non linear effects that appear in fibers for such densities of power?

Here we present an active method to keep a stable injection and avoid the noises coming from a misalignment between the input beam and the fiber. The error signal that we use is generated by a scan of the input of the fiber.
We also present the investigations on a Large Mode Area fiber. Especially the compromise that has to be found between the quality of the output beam and the power that can be reach before facing Stimulated Brillouin Scattering.

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