Re: lens fabricator required − urgent!

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- *From*: "Ron Gibbs" <ron.gibbs@xxxxxxxxxxx>
- *Date*: Thu, 21 May 2009 09:36:31 +0100

"Richard J Kinch" <kinch@xxxxxxxxxxx> wrote in message news:Xns9C1216ABA7E8Dsomeconundrum@xxxxxxxxxxxxxxxxx

> Ron Gibbs writes:
>
> > Object−image distance is fixed 300mm, including 50mm glass beamsplitter. Continuous magnification range 2.5 − 5.5x, aperture ~F/2.0. MTF>0.5 @30 lp/mm up to 15mm off−axis image field with <10% vignetting. Do you know any camera or enlarger lenses that will do this?
>
> Canon "L" prime lenses in 50mm f/1.4 or 85mm f/1.4 would be candidates. They are supposed to out−resolve 70 lp/mm sensor chips, and I think Canon has MTF charts online. Not sure about how you plan to both focus and magnify with a fixed distance. You need two degrees of freedom. Zoom lenses are limited to f2.8. And you haven't specified field sizes.
>
> A 5X magnification is about the end of macro and the start of microscopy, and I sure don't know of any f/2 microscopes.
>
> If by "vignetting" you mean cos^4 dropoff, digital compensation would be in
> my mind.

I am sure you are trying to be helpful, but it appears your knowledge of optics is limited. You don't seem to understand the problem, how optics can be used to solve it, or the limitations of camera lenses.

I did specify field size, if you read my post more carefully. Zoom lenses vary magnification and focus by moving groups of elements axially, either independently or in mechanically linked paths. Microscopes go up to >0.5NA (though not at x2.5). Vignetting is a well−known concept in lens design.

Using a camera lens was your suggestion, not mine, and I question the feasibility − you outlined some of the problems yourself. You are right, in

some ways it is more like a low−power microscope than a camera, but not like any microscope I have seen. I designed a custom lens to do this, which is why I'm looking for fast turnaround lens fabricators (and running out of time).

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