Lens for linear aperture fluorescent tube

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Given an emissive surface 5/8 inch diameter within a fluorescent tube and a clear 5/16 inch window aperture the length of the tube, how might one explore the characteristics of a beam output through a linear lens laminated to the tube?

With ray tracing sofware, of course.

Any freebies available?

And are such packages capable of considering a tube of finite length 4 3/8 inches and the resultant combinations of rays normal to the axis with rays not normal?

I certainly would *hate* to try setting this up in Mathcad, but I could. I am pretty good with Mathcad. I'd really rather not, though, unless the discussion here goes symbolic. Then I can just optimize an integral for intensity on the center line normal to the axis and be done with it. Could that be done with certain simplifying assumptions about the lens shape? Cylindrical, parabolic, etc?

I guess in Mathcad I'd generate rays that pass through the aperture, refract them in the lens, and plot them, then draw a contour plot for beam shape, and animate using the lens curvature as a single parameter, leaving the inside the 5/16 inch negative curvature as a meniscus, or something like that.

Let's start with this: For polymethylmethacrylate, inside radius 5/16 inch, what is the outside radius of a meniscus lens that will focus 5/8 inch BFL?

I tolerance everything and tolerate everyone.
I love: Dona, Jeff, Kim, Kimmie, Mom, Neelix, Tasha, and Teri, alphabetically.
I drive: A double−step Thunderbolt with 657% range.
I fight terrorism by: Using less gasoline.