
Subject: PSF Energy inside circle

Posted by [mayer](#) on Wed, 23 Jul 2008 18:03:30 GMT

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Dear all,

as so often I am either too blind to find existing stuff or puzzled (if non-existing), that nobody did before what looks like a very usual task.

What I want to know:

Where in an image array (usual 2d-array with values, e.g. a CCD image) containing a centered 2d-gaussian light pulse lies the circle that contains 80 % (for example) of the "energy" of all the light on the image? I even only need it for the ideal situation where the center of the CCD aligns with the center of the 2d-gaussian light distribution.

What I did so far:

- Collected useful procedures like `psf_gaussian`, `dist_circle` and `tvcircle`.
- Found the algorithm how to integrate from the center pixel towards outside, summing up the frame of pixels next to the previous frame. So my cumulative sum contains the sum of the data of 1, 9, 25 ... pixels.

But I would like to go in circles, not squares! :)

So how could I find and integrate the next "ring" of pixels? How would I even calculate the ever growing circumference correctly, taking into account that I have to sum up ever more pixels?

Sounds like a horrible coding work and I am hoping somebody did all that already, because somehow that is something one would need to see how good an optical PSF is, or not?

As usual, I am grateful for any help or hint to literature, procedures or calibration data of other experiments that might have done the same.

Best regards,
Michael
