

## **A normalized routine assessment of objective lens performance at a microscopy facility**

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Microscopes in a core facility are heavily used instruments and require permanent surveillance and maintenance. Point Spread Functions (PSFs), reconstructed from stacks of fluorescent point source images, can give important insights into the performance of the microscope. Our aim was to enforce a standardized and reliable method to monitor microscope performances using PSFs.

We developed an ImageJ Macro to display PSF thumbnails in a standardized manner. Over a period of several months, we have generated PSFs for each objective of four heavily used upright and inverted microscope setups: a Z-stack consisting of 100 planes separated by 200nm is taken for each objective on 3 different beads each week.

Our systematic study reveals that objectives mainly suffer from careless use of automated microscope stages where various stage inserts and sample holders are combined.