

WHAT IS A LIGHT SCRAMBLER?

The Fiberoptic Light Scrambler is a state-of-the-art optical microscope accessory and enabling device that transforms a non-uniform light source (e.g. the output from an arc lamp) to an exceptionally uniform light input to the microscope. When used with video microscopy and image processing systems, the resulting image is clearer, with improved contrast and finer visible detail.

Why the resolution improves so much.

Even though an arc lamp has a relatively small, extremely bright spot, the intensity of an arc can vary by a factor of 1000 across its approximate 1mm diameter. Each point of light projected onto the condenser aperture is an image which is illuminated from a different angle. The only thing that will be the same in all these images, with a source of uneven illumination, is the *in-focus* information. The background and the *out-of-focus* information will all be different and will therefore degrade the image, since each point will have a different brightness. The Scrambler projects a nearly uniform 1mm source of illumination onto the condenser aperture; the diffraction pattern produced from each point in the specimen then more closely approaches the ideal Airy disk, effecting a dramatic improvement in resolution.