

of polarised high power light and diffraction-limited output, into two physical fibre sections: a longer multimode section and a shorter mode cleaning section.

The disadvantage of the first solution is the increase in complexity, however we know it is feasible. The advantage of a two-sectioned fibre is that its design would be no longer limited by the critical input power of a single-mode fibre of equivalent length. Instead higher power levels could be considered. For a sodium laser with 10 W output power, whose spectrum is optimised for maximum LGS

return flux, a hybrid fibre is under study. Assuming the same launching and atmospheric parameters as for Figure 5, without optical pumping of the sodium atoms via circular polarisation, this laser setup should be able to provide a seeing-limited LGS of brightness $V=8$ magnitude. This would be sufficient for adaptive optics correction even under poor seeing conditions, pointing at 60 deg Zenith angle.

References

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power narrow-band laser light in monomode fibre', *Electronics Letters*, Vol. 18, No. 15, p. 638–640, 1982.

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New Pictures from the VLT



Spiral Galaxy Messier 83: This photo shows the central region of a beautiful spiral galaxy, Messier 83, as observed with the FORS1 instrument at VLT ANTU. It is based on a composite of three images, all of which are now available from the ESO Science Data Archive. The three frames were taken in March 1999 through three different filters: B (wavelength 429 nm; Full-Width-Half-Maximum (FWHM) 88 nm; exposure time 10 min; here rendered as blue), R (657 nm; 150 nm; 3 min; green) and I (768 nm; 138 nm; 3 min; red) during a period of 0.8 arcsec average seeing. The field shown measures about 6.8 x 6.8 arcmin and the images were recorded in frames of 2048 x 2048 pixels, each measuring 0.2 arcsec. North is up; East is left.