

### [AT-05] Development Status of the DOTIFS: a new multi-IFU optical spectrograph for the 3.6m Devasthal Optical Telescope

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DOTIFS is a new multi-object Integral Field Spectrograph (IFS) being designed and fabricated by the Inter-University Center for Astronomy and Astrophysics, Pune, India, (IUCAA) for the Cassegrain side port of the 3.6m Devasthal Optical Telescope (DOT). The telescope is constructed by the Aryabhata Research Institute of Observational Sciences, Nainital (ARIES). Its main scientific objectives are the physics and kinematics of the ionized gas, star formation and H II regions in nearby galaxies. It is a novel instrument in terms of multi-IFU, built in deployment system, and high throughput. It consists of one magnifier, 16 integral field units (IFUs), and 8 spectrographs. Each IFU is comprised of a microlens array and 144 optical fibers, and has  $7.4'' \times 8.7''$  field of view with 144 spaxel elements with a sampling of  $0.8''$  hexagonal aperture. The IFUs can be deployed on the telescope side port over an  $8'$  diameter focal plane by x-y actuators. 8 Identical, all refractive, dedicated fiber spectrographs will produce 2,304 R~1800 spectra over 370~740nm wavelength range with single exposure. Currently, conceptual and baseline design review had been done, and is in the critical design phase with a review planned for later this year. Some of the components have already arrived. The instrument will see its first light in 2015

### [AT-06] Filter wheel design for CQUEAN II

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CQUEAN(Camera for QUasars in EARly uNiverse) has been used at the 2.1 m Otto Struve Telescope of the McDonald Observatory since 2010. This camera is optimized at  $0.7 - 1.1 \mu\text{m}$  for the survey of Lyman break of high redshift ( $z > 5$ ) quasars in the early universe. The current system has a filter wheel consist of seven ( $g'$ ,  $r'$ ,  $I'$ ,  $z'$ ,  $Y$ ,  $I_z$  and  $I_s$ ) broad-band filters. We are upgrading this filter wheel to have 20 narrow band filters, with which we can take spectral energy distributions of targets. The new filter wheel consists of interchangeable cartridges for 50 mm square filters, a speed reducer unit, and a step motor. This new design of the large size filter wheel can be applied to other large format CCD cameras.