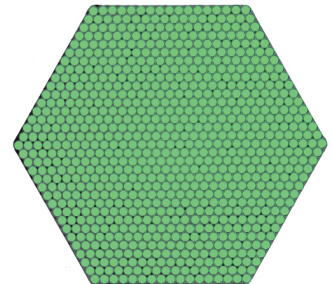


INTEGRAL FIELD UNITS



IFUs are used for extended source imaging of sky objects (galaxies, nebulae). They consist of a large number (hundreds or thousands) of fibers arranged in a fixed, predetermined pattern. Fibers can be either close packed for direct imaging, or spaced to match a microlens array for improved throughput. IFU systems can be built as a retrofit or upgrade to an existing telescope.



CHALLENGES

Microlens coupled

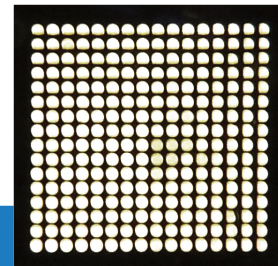
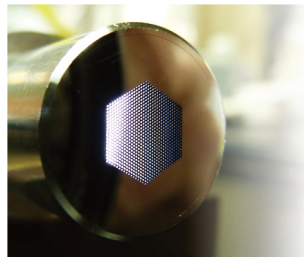
- precision fiber positioning to provide regular spacing to match the microlenses

Close packed

- regular spacing to provide reliable spatial information

Both

- uniform throughput
- mapping
- precise fiber pointing
- low defect tolerance



FTO CAPABILITIES

General

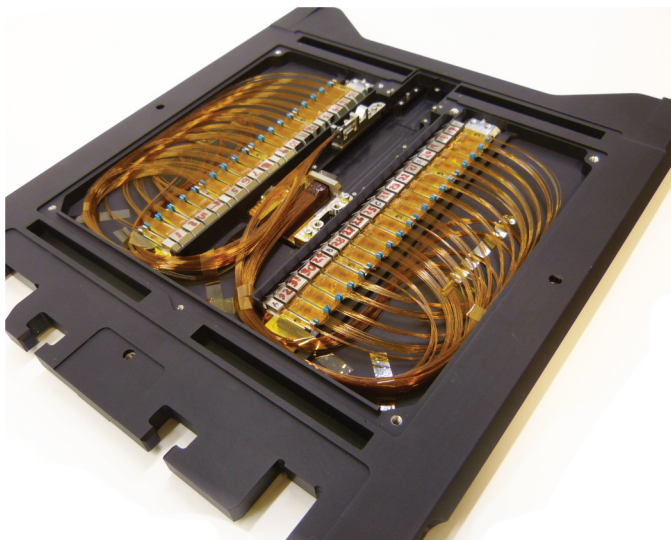
- low stress assembly and processing
- optical testing
- integration of additional components (lenses, microlens arrays, folding optics)
- detailed traceability (component and fiber lots, test data at various stages of assembly)
- quick ramp-up to volume production
- manufacturability improvements

Input end

- precision hole plates (< 1 micron hole location, ~ 1 micron diameter)
- active optical alignment of microlens arrays

Output end

- slitlet block machining (precision v-grooves, mounting features)
- slitlet block, or slit assembly



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