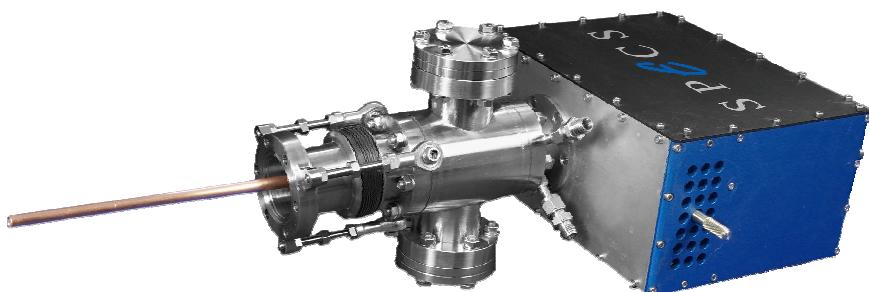


## UV Source

# UVLS



The new SPECS UVLS is a microwave plasma-based UV light source developed combining microwave plasma source expertise from the successful PCS-ECR and MPS-ECR sources with our experience in focussed ultimate brilliance UV sources.

The UVLS is a filamentless source and is therefore not subject to the filament ageing of electron impact plasma UV sources. Instead the He plasma is created directly in the quartz output capillary leading to excellent coupling of the generated UV to the chamber or monochromator. This design provides long term plasma stability making the source suitable for use even with heavier gases like Ar and Xe.

Because the microwaves are generated directly in the UVLS a simple high-voltage cable (5m standard length) is sufficient to supply power to the UVLS. Regular water-cooling and an on-board fan are all that is needed for cooling. The use of all-metal seals means that the source is O-ring and elastomer free.

The microwave system has been designed to be highly tolerant of the small perturbations common to plasma operation with the result that the plasma is highly stable. Simple tuning is provided to allow optimisation of the microwave coupling under a given set of conditions but once these are established no further adjustment is necessary. Many users will find the factory setting perfectly adequate and no adjustment will be needed. The plasma starts readily on introducing gas into the UVLS obviating the need for "strikers" or other starting mechanisms.

## UV Source UVLS

### Specifications

- UHV compatible all metal seals
- bakeable to 120°C
- Operating gases: He, Ar, Xe, H, Ne, ...
- Microwave power: >400W
- Photon flux:  $>1.3 \times 10^{16}$  photons/(s sr) at entrance of capillary for HeI (measured with Photo cathode)
- Photon flux:  $>1.0 \times 10^{13}$  photons/(s sr) behind TMM304 monochromator at entrance of capillary for HeI (absolute value with Photodiode)
- Operating pressure in analysis chamber: Typically in  $10^{-7}$  mbar range with single-stage differential pumping on UVLS (standard) and turbo pump of a few hundred l/s on the chamber.
- Operating pressure in analysis chamber as above but with TMM 304 monochromator and pumped ETC:  $<1 \times 10^{-10}$
- Flange mounting: NW35CF
- Power supply: 19" rack mounting connected to UVLS by 5m HV cable

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