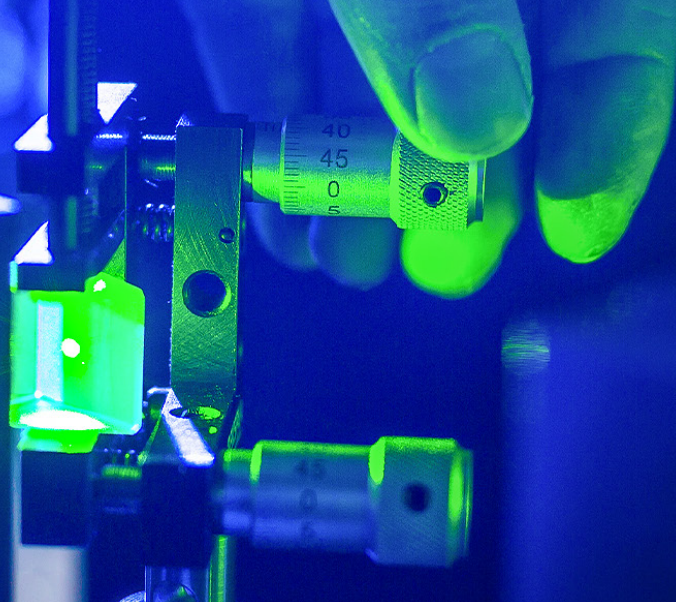


Low jitter – experimentally verified

Magnetic-bearing choppers

to pulse infrared (IR), laser, vacuum ultraviolet (VUV) and x-ray beams



Celeroton solution

Celeroton magnetic-bearing chopper CM-AMB-400 with controller CC-AMB-500:

- Operation in vacuum down to 10^{-6} mbar
- Low vibration emissions
- Jitter of optically chopped signal: < 10 ns
- Chopper frequency: > 200 kHz
- Speed stability: < 200 ppm
- Speed control via reference signal
- Maintenance-free
- Custom chopper discs and mirror rotors
- Lock-in to reference signal to improve control performance
- Custom shielding for use in x-ray environments

Application examples

Infrared (IR) nanospectroscopy

To directly resolve and measure an IR photo-thermal spectrum at the sub micrometer scale the IR beam must be modulated. This modulation can be achieved with an optical chopper running in vacuum at high frequency and with low jitter as provided by a high-speed magnetically levitated chopper disc.

„We have ended up with a system that we can be proud of and that will genuinely make a big difference to the Diamond IR nanospectroscopy as well as other scientists in the future.“

Dr. Mark Frogley, Senior Beamline Scientist of B22 at Diamond Light Source (DLS)



Crystallography

The latest generation synchrotrons allow to achieve a much higher flux density at the sample position than previous installations and thereby open up new perspectives to perform time resolution study in the micro to the millisecond time regime in crystallography experiments.

„The chopper is performing very well and its deployment and integration on our system has been smooth.“

Dr Daniele de Sanctis, Scientist in charge of ID29 at The European Synchrotron Radiation Facility (ESRF)

