

Laserové centrum HiLASE Vás zve na seminář v anglickém jazyce:

Fiber solutions in 0.2-16 μ m range for laser power delivery and spectroscopy

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Well known fused silica fibers possess by high transmission in a broad spectral range from 180nm up to 2.2 μ m and can be used for Near-InfraRed (NIR-) spectroscopy or for delivery of power for Diode, Nd- or Ho-lasers. As their transmission is limited for a longer wavelengths by fundamental multi-phonon absorption wing – the other types of materials were used to develop fibers for Mid InfraRed range, i.e. for wavelengths above 2,2 μ m.

Strong demand for spectroscopy, laser power delivery and other applications in “finger-print” Mid IR-range 2-16 μ m has resulted in development and production of IR-glass fibers, Hollow Waveguides and Polycrystalline IR-fibers (PIR-fibers) extruded from the crystals of Silver Halide solid solutions. Progress Mid IR-fiber optics and Silica fibers will be presented with the focus on their applications for power delivery of various lasers – from Excimer, Diode, QCL and solid state lasers, to gas lasers like CO- & CO₂-lasers.

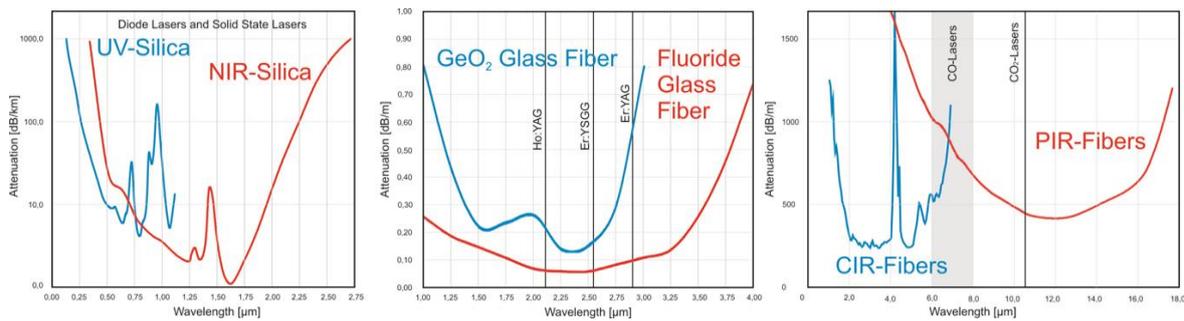


Fig.1 Attenuation spectra in different types of fiber optics from 200nm to 16μm

Design of laser cables will be presented providing flexible power delivery of CO- & CO₂ laser beams as the alternative to less flexible hollow waveguides and articulated mirror arms.

Fiber optics is also the best to use key spectroscopy methods: Fluorescence, Raman and diffuse linear scattering, Mid & Near InfraRed and UV/Vis-absorption, - for reaction monitoring in real-time. Fiber probes enable to collect molecular composition changes in critical points in-line and provide thereby an immediate feed-back for process control and its optimization. Synergy of the best combinations for spectral methods can provide a wealth of information that can improve sensitivity, speed, quality, and accuracy in such measurements.

Multi-Spectral Fiber (MSF-) system enables to use any of these methods in broad 0.2-16μm range either alone or in any combinations with a single or combi-fiber probe – to achieve the most sensitive and precise process control parameters on-line or even in-line.

Kdy: v úterý **24. 10. 2017 od 10:00**

Kde: seminární místnost HiLASE