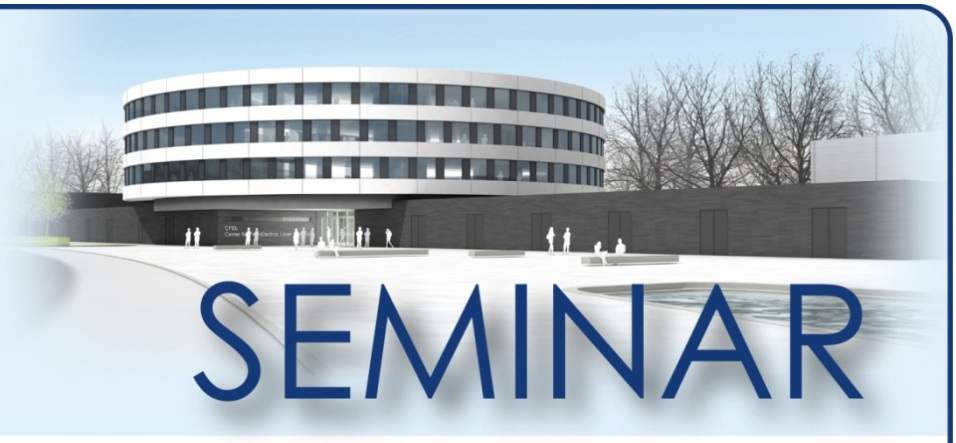
CFEL SCIENCE



SEMINAR

26th May, 2016 - 14:00

CFEL-bldg. 99, seminar room IV (O1.111)

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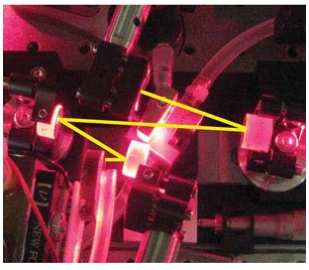
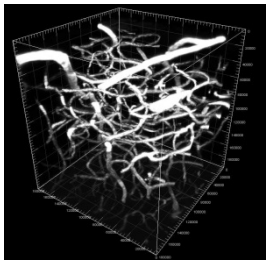
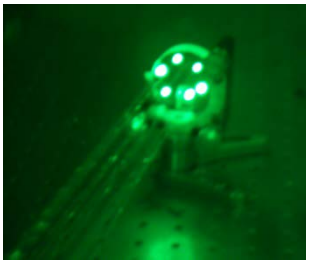
A decade of research with Cr:Colquiriite Lasers: a summary of results

Cr:Colquiriite laser materials possess broad absorption bands in the visible region that allow direct-diode pumping by low-cost red diodes. Moreover, they own broad emission bands in the near infrared that enable widely tunable laser operation (770-1110 nm), and generation of 10-fs light pulses via mode-locking. Furthermore, Cr:Colquiriite crystals can be grown with a very low loss level of 0.2%/cm, which enables the construction of high-Q-cavities, resulting in lasing thresholds below 2 mW, and slope efficiencies above 50%. High-Q-cavities constructed with Cr:Colquiriites store large amount of intracavity laser power which is off great interest: (i) for increasing the efficiency of intracavity nonli-neer processes such as intracavity frequency-doubling, and (ii) for minimizing the timing jitter noise in femtosecond operation. However, thermally and mechanically Cr:Colquiriites have glass like proper-ties. Hence, power scaling have been challenging in the cw and femtosecond Cr:Colquiriite lasers, as well as in their amplifiers. In this talk, we will review our efforts over the last decade, in developing ro-bust, ultra low-cost ($5-20k), highly-efficient, and tunable cw and femtosecond laser sources based on diode-pumped Cr:Colquiriite gain media.







Host: Franz Kärtner, CFEL UX Seminar