Graduate School of Engineering, Division of Electrical, Electronic and Information Engineering, Department of Quantum Electronic Device Engineering, Course of Ultimate Quantum Science

Miyanaga Lab. (Ultra-Intense Photonics Area, Institute of Laser Engineering)

Research objectives

[Femto-second and atto-second power photonics]

- Development of world leading “few cycle laser” based on advanced ultra-short pulse technology and high-power laser technology
- A variety of applications of power lasers

Research subjects

Adaptive Power Photonics

- Ultra-wide band light amplification (~5fs, 30TW)
- Particle acceleration, plasma grating and applications

Nano Processing

- Design of interference pattern by coherence control
- Fabrication of plasmonic device by interfering fs laser

Functional Laser Materials and Components

- High-power visible laser using new Pr-doped fiber
- Laser YAG ceramics and hetero composite with sapphire

High-average-power Lasers

- High-average-power, pulsed fiber laser
- Coherent beam combining of pulsed lasers

Staffs and collaborators

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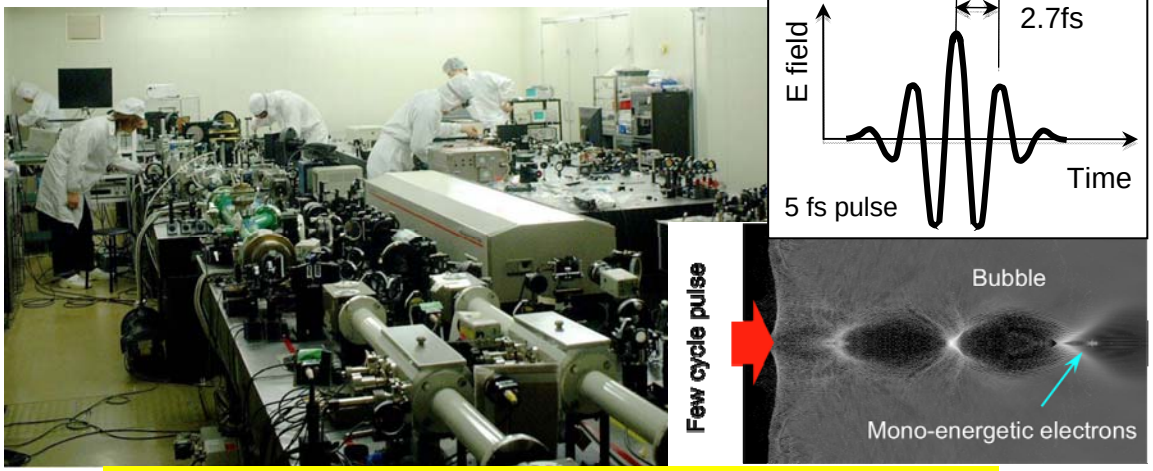
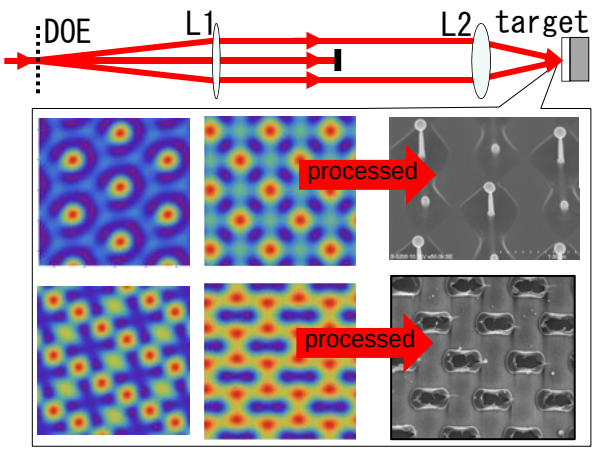
URL *http://www.ile.osaka-u.ac.jp/research/lcc/*
http://www.ile.osaka-u.ac.jp/research/emp/

Fusion of power laser and precision photonics

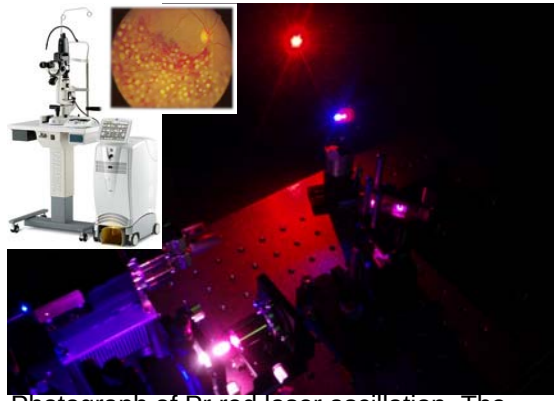


Time scale: 1 fs = 10^{-15} sec, Intensity scale: 1 TW = 10^{12} W

Design of interference pattern & fabrication of plasmonic device



Functional Laser Materials and Components



Photograph of Pr red laser oscillation. The laser is useful for a photocoagulator.