Ultrafast imaging of femtosecond-laser ablation plume

Motivation

Laser-produced-plasma x-ray is an attractive source for generating high brightness and ultrashort soft x-ray pulses. By using this feature, we are trying to develop a new imaging method for measuring the ultrafast structural dynamics in materials that are inaccessible with conventional optical methods.

Originality

We have developed a spatiotemporally resolved x-ray absorption fine structure (XAFS) system based on the combination of laser-produced ultrashort soft-x-ray source and Kirkpatrick-Baez type x-ray microscope.

Impact

Femtosecond-laser ablation attracts much attention as a new laser-processing technique. This research is a first step for taking a snapshot of ultrafast evolution of fs-laser ablation plume in temporal and spatial domain.

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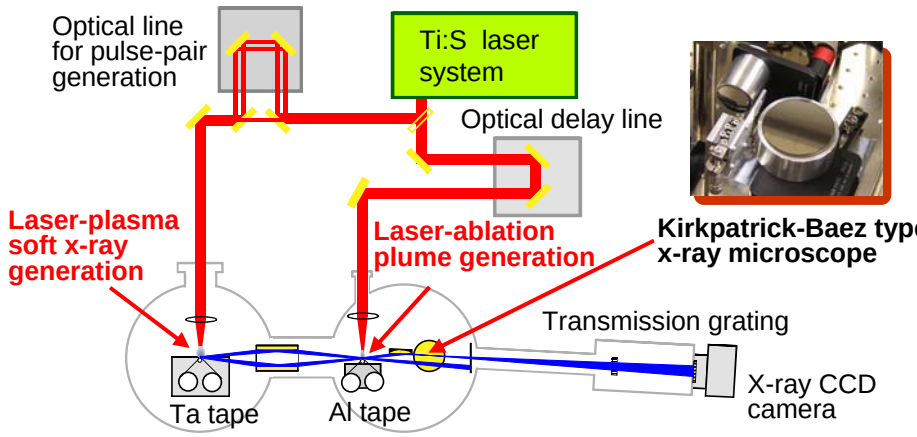
Spatiotemporally resolved XAFS system



Spatiotemporal evolution of a fs-laser ablation plume