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We are studying the ablation and modification of materials associates with femtosecond laser irradiation. In addition, we are also interested in the transient state of materials during femtosecond laser irradiation.

The schematic of time-resolved soft x-ray imaging of ablation processes and the reflective images on platinum at each delay time are show in Fig. 1. From this figure, it was found that the ablation phenomena is already started at 10 ps, and finished at 160 ps. We also observed the nano-bubble formation and nonthermal ablation processes related to the femtosecond laser irradiation.

Fig. 2 shows the schematic of electrical conduction control by fs laser modification. The femtosecond laser beam is irradiated between two metal contacts on semiconductor. With increasing the irradiation fluence, the local electrical conductivity abruptly decreased at the threshold fluence.

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