

Supplementary Materials for

Short-range surface plasmonics: Localized electron emission dynamics from a 60-nm spot on an atomically flat single-crystalline gold surface

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The PDF file includes:

- fig. S1. Determination of phase and group velocity of SR-SPPs.
- Legends for movies S1 and S2

Other Supplementary Material for this manuscript includes the following:
(available at advances.sciencemag.org/cgi/content/full/3/7/e1700721/DC1)

- movie S1 (.avi format). Nanofocusing movie experiment.
- movie S2 (.mp4 format). Nanofocusing movie theory.

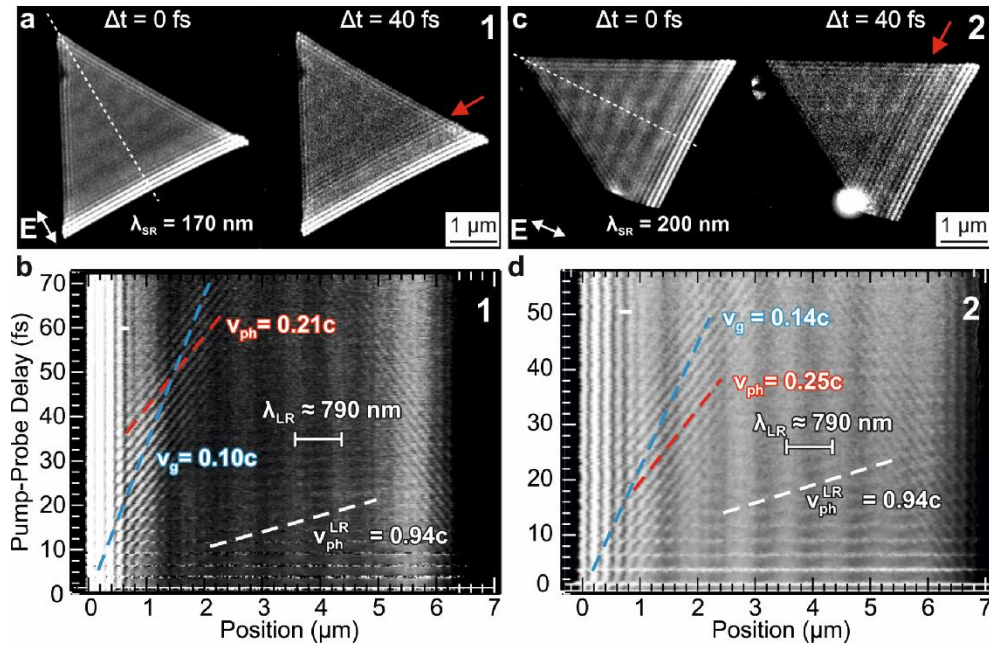


fig. S1. Determination of phase and group velocity of SR-SPPs. (a) PEEM images of a ~20 nm thick platelet (“1”) with propagating short-range surface plasmon polaritons at 0 and 40 fs time difference between the two laser pulses. (b) Plot of the normalized PEEM intensity along the dashed line of figure (a) as a function of position (x-axis) and time delay (y-axis). The slopes of the blue and red dashed lines indicate the short-range plasmon group and phase velocities, respectively. The slope of the white dashed line indicates the long-range plasmon phase velocity. (c) PEEM images of a ~40 nm thick platelet (“2”) with propagating short-range surface plasmon polaritons at 0 and 40 fs time difference between the two laser pulses. (d) Plot of the PEEM intensity along the dashed line of figure (c) as a function of position along the dashed line (x-axis) and time delay (y-axis). The slopes of the dashed blue and red lines indicate the short-range plasmon group and phase velocities, respectively. The slope of the white dashed line indicates the long-range plasmon phase velocity. The red arrows in (a) and (c) indicate the position of the short-range surface plasmon polaritons at 40 fs delay time.

movie S1. Nanofocusing movie experiment.

Time-resolved PEEM movies of short-range plasmonic nanofocus formation. This movie contains snapshots of the short range SPP experimental movie.

movie S2. Nanofocusing movie theory.

Time-resolved PEEM movies of short-range plasmonic nanofocus formation. This movie contains snapshots of the short range SPP theoretical movie.