



Intense-laser-induced symmetry breaking in silicon

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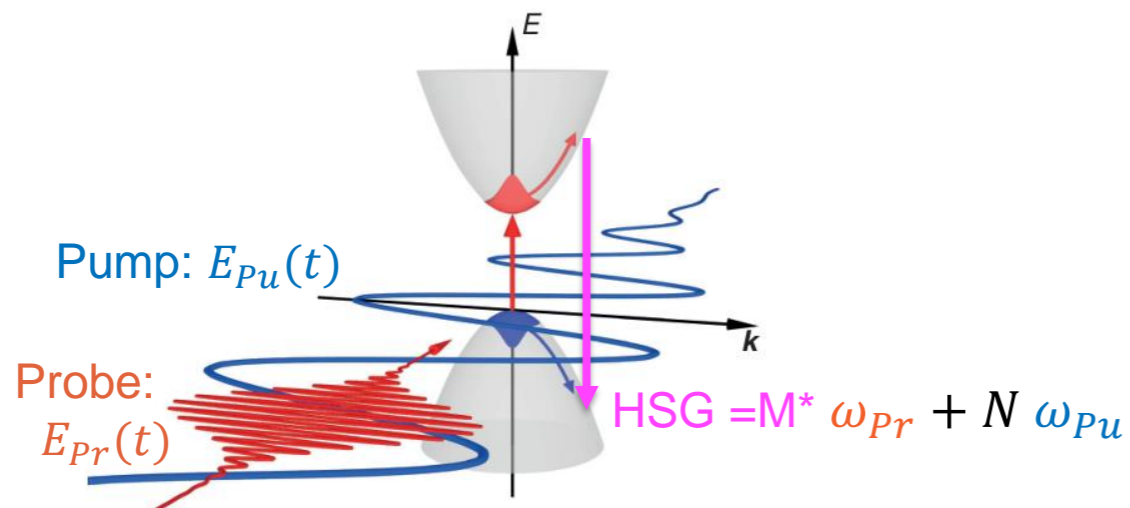
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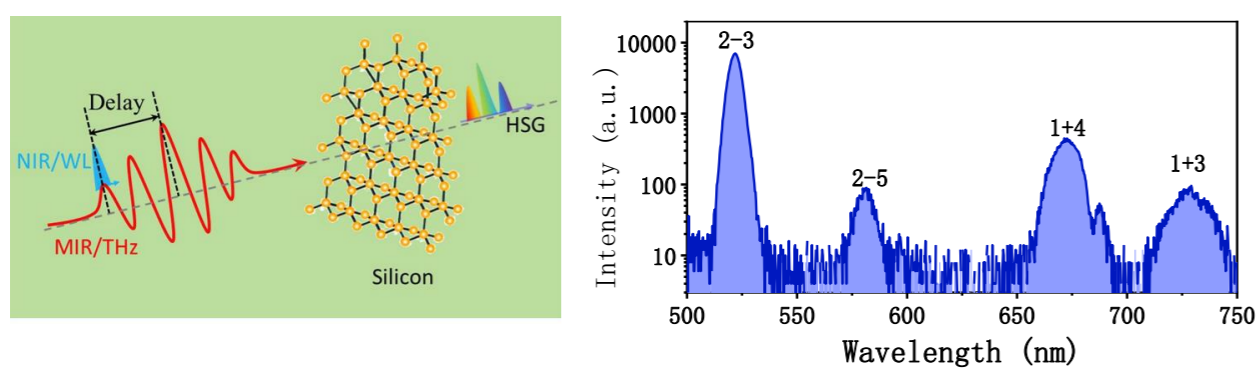
復旦大學
FUDAN UNIVERSITY

I Introduction

High order sideband generation(HSG)



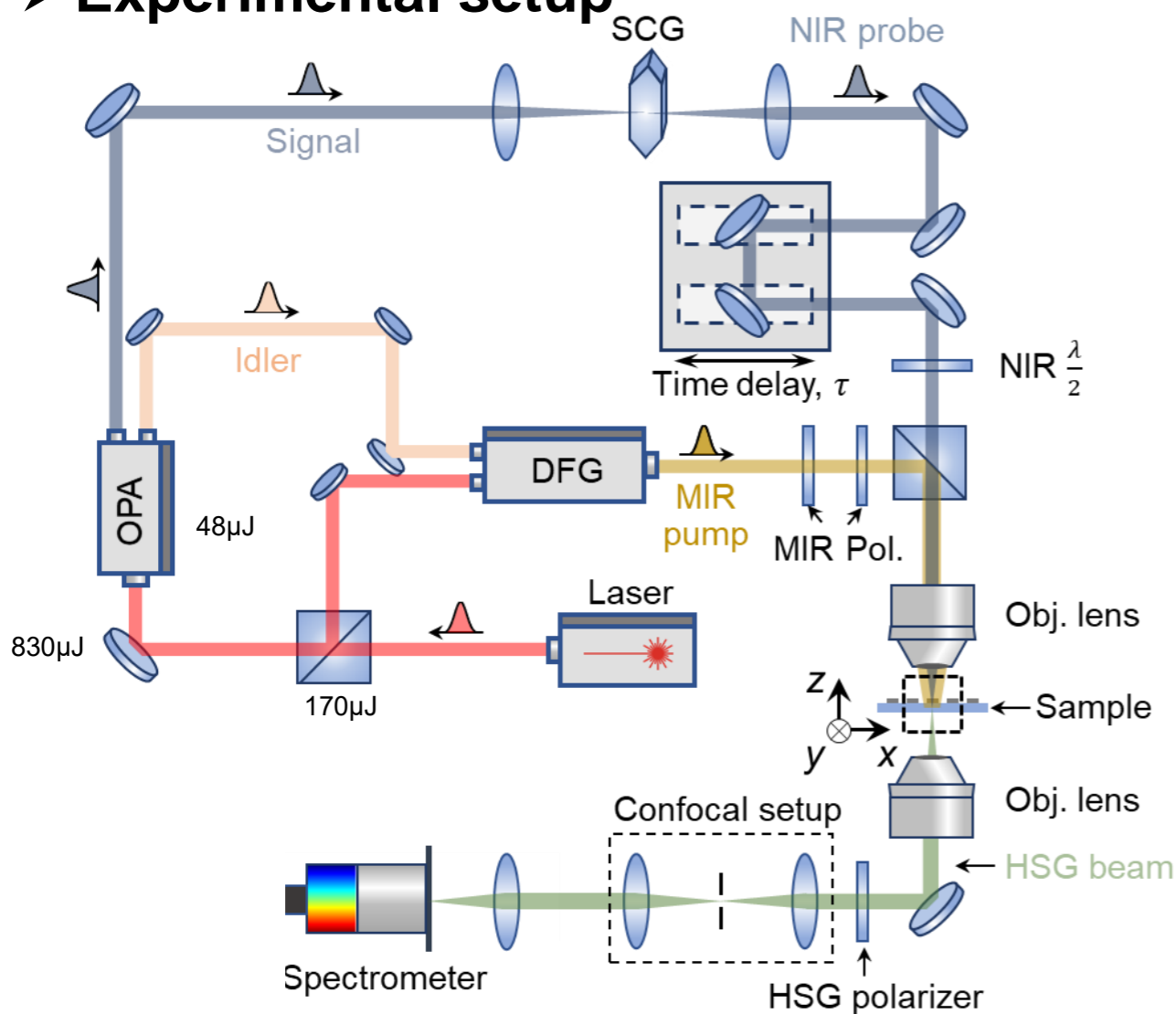
F. Langer et.al. Nature 533: 225–229 (2016)



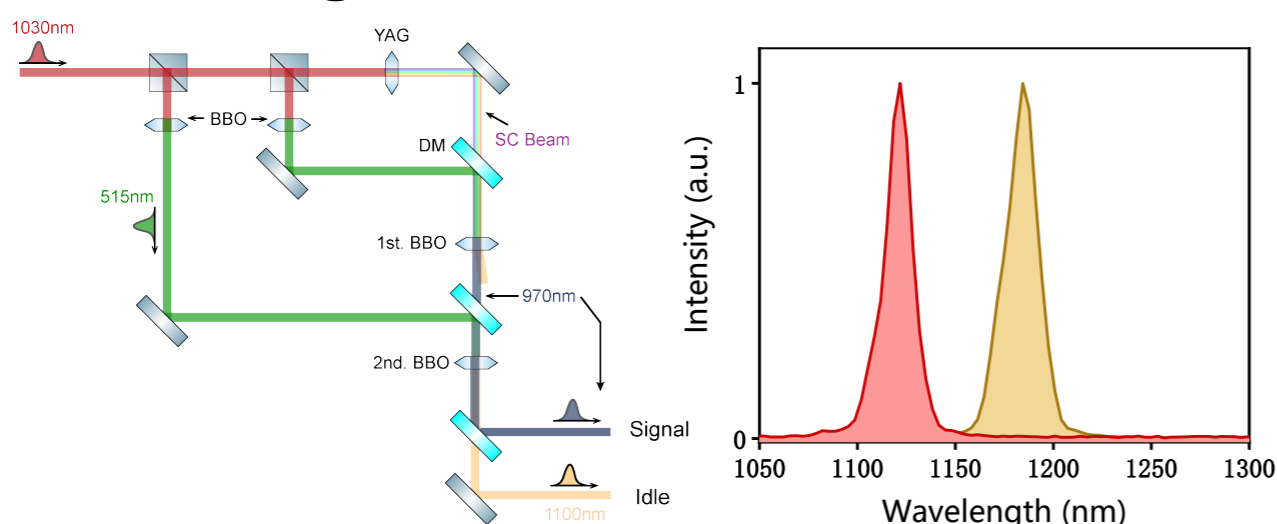
HSG spectra in Si, 910nm probe, 28THz pump

II experiment

Experimental setup

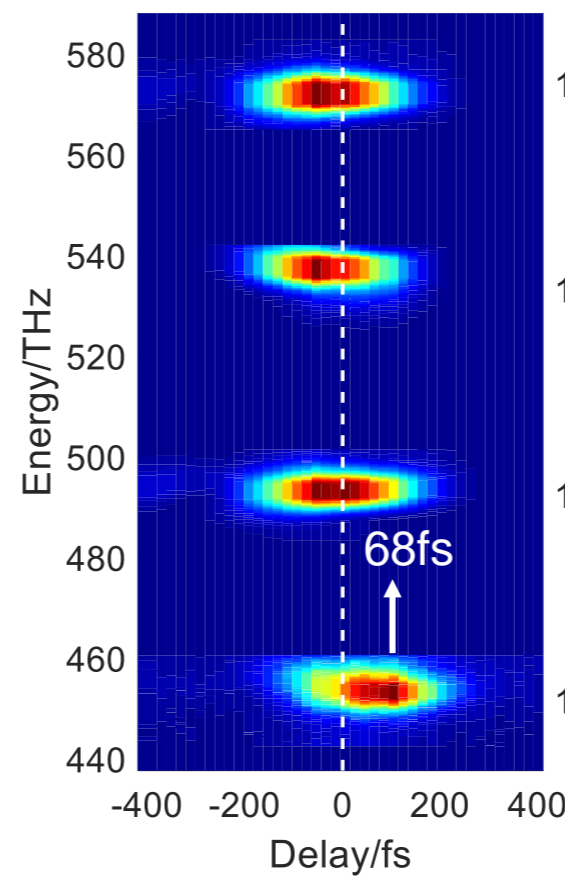


Wavelength-Tunable OPA

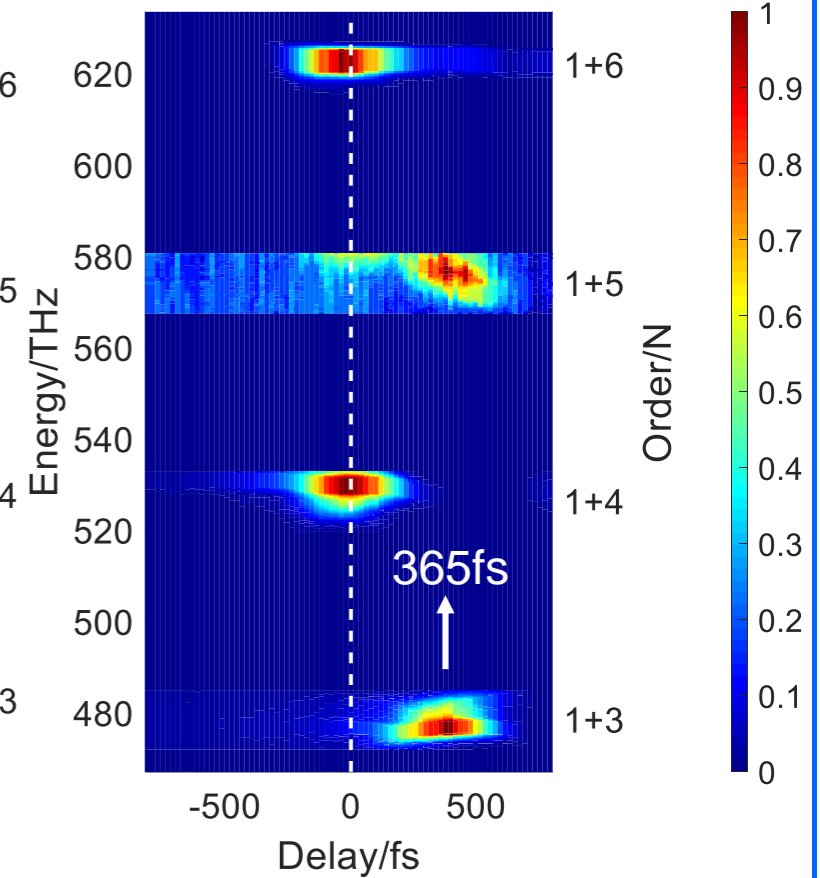


III Main Results

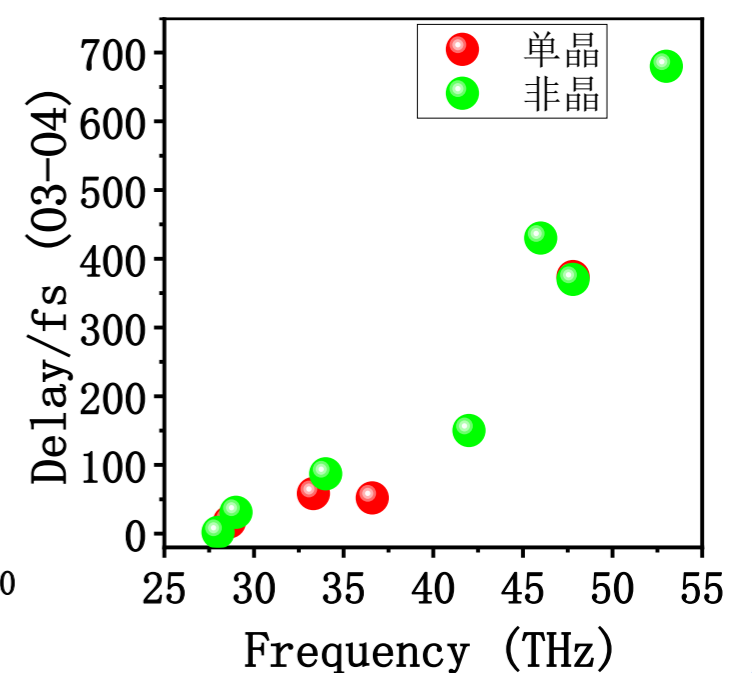
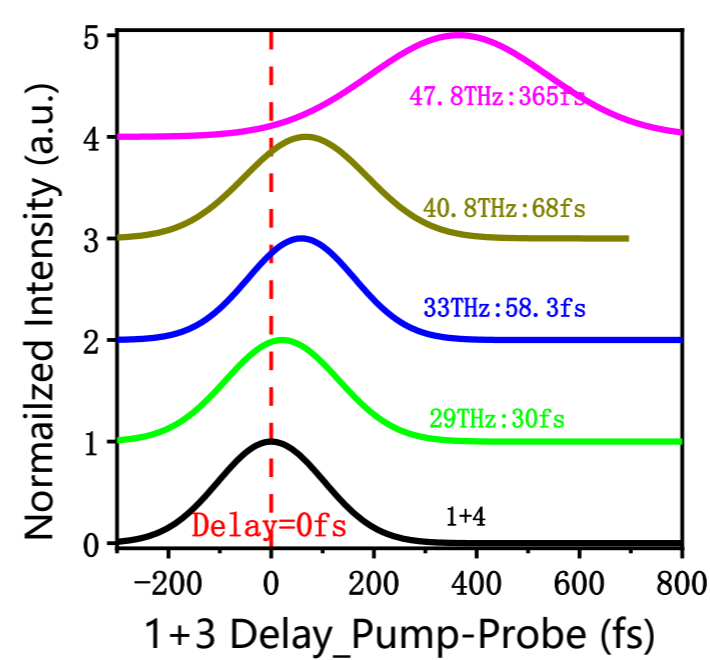
$\omega_{Pu} = 40.8\text{THz}$



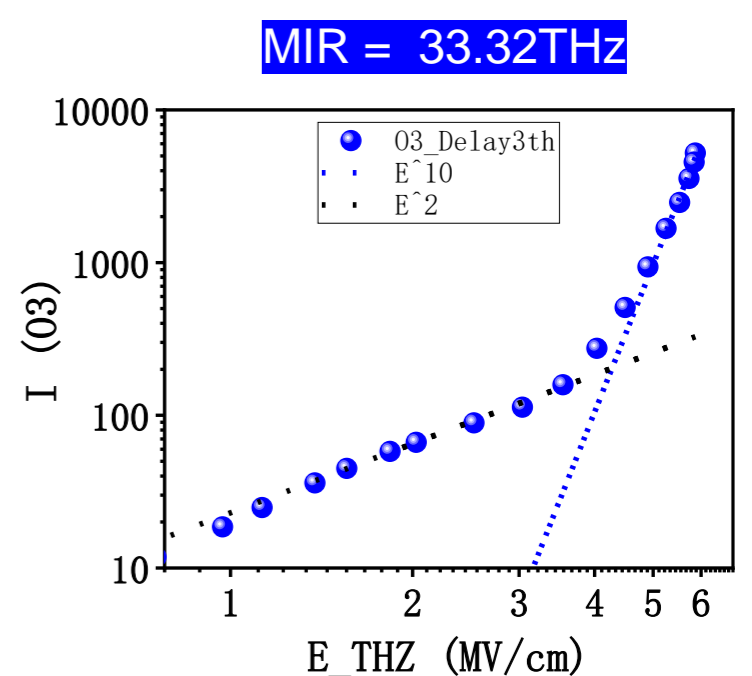
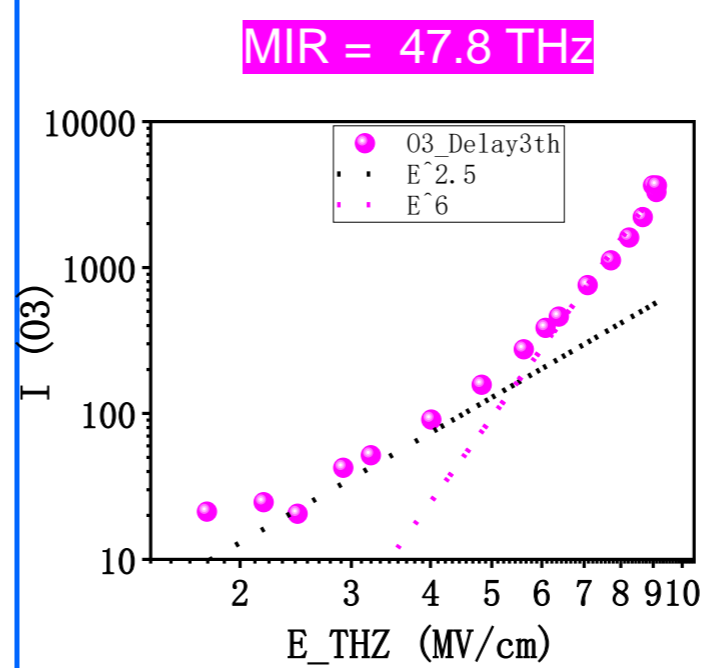
$\omega_{Pu} = 47.8\text{THz}$



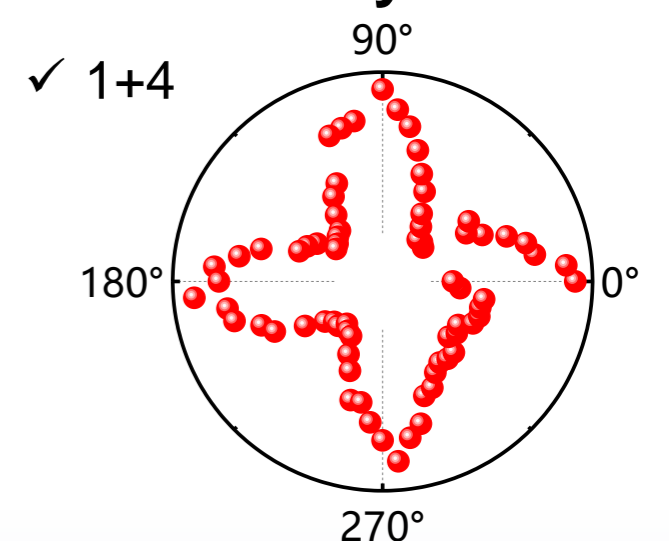
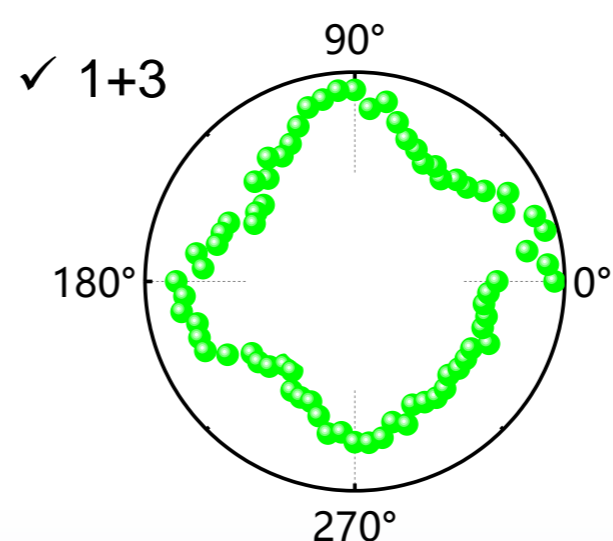
Change pump frequency



Pump intensity dependence



Polarization-resolved HSG intensity



VI Conclusion

- + For the first time, the characteristics of HSG signals in Si under strong fields were observed.
- + The observed interesting signal correlates with both the pump-probe delay and the pump frequency.