

# The Progress of Spin-Resolved Photoelectron Spectroscopy in Shanghai

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The performances of two new image type VLEED spin polarimeters and 21 eV laser will be reported. The energy resolution of second version with permanent magnets and quadrupole lenses achieves 12 meV. The possibility to use 45 degree reflection for VLEED spin measurements was also checked and a higher efficiency was obtained at 3.5 eV. This type polarimeter with simple structure can achieve small aberration and have the ability to measure the three dimensional spin polarization. The construction of a time of flight spin polarimeter will also be reported.

Generating a laser with a short wavelength is a bottleneck problem in laser technology. The current applicable extreme ultraviolet (EUV) lasers generated by the multi-photon process, with low efficiency and the record short wavelength of 113.8 nm, do not meet some actual needs. we will report the development of a practical 58.4 nm laser by a single-photon-excitation related anti-Stokes Raman scattering (ASRS). The conversion efficiency is much higher than that of high harmonic generation (HHG). The almost same divergence of 1.9 mrad as that of excitation laser indicates its coherent and stimulating characters. Our results show an applicable path towards up-conversion by a single-photon process to generate intense EUV lasers.

The spin-resolved photoelectron measurements on some systems showing the ability of image type spin polarimeter will also be reported.