

1. Introduction

It is a general consensus that magnetism plays an important role in the superconducting mechanism of iron-based superconductors. So it is necessary to investigate the origin of the magnetism in iron-based superconductors. Neutron scattering is a very powerful probe to study the spin excitations of a magnetic system. In previous experiments, we have measured the low energy spin excitations in the newly discovered 112-type iron pnictide superconductor $\text{Ca}_{1-x}\text{La}_x\text{Fe}_{1-y}\text{Ni}_y\text{As}_2$. Here in this experiment 2017B0058, we measure the high energy spin excitations up to the band top. With the spin excitations results, we can get the information of effective exchange coupling

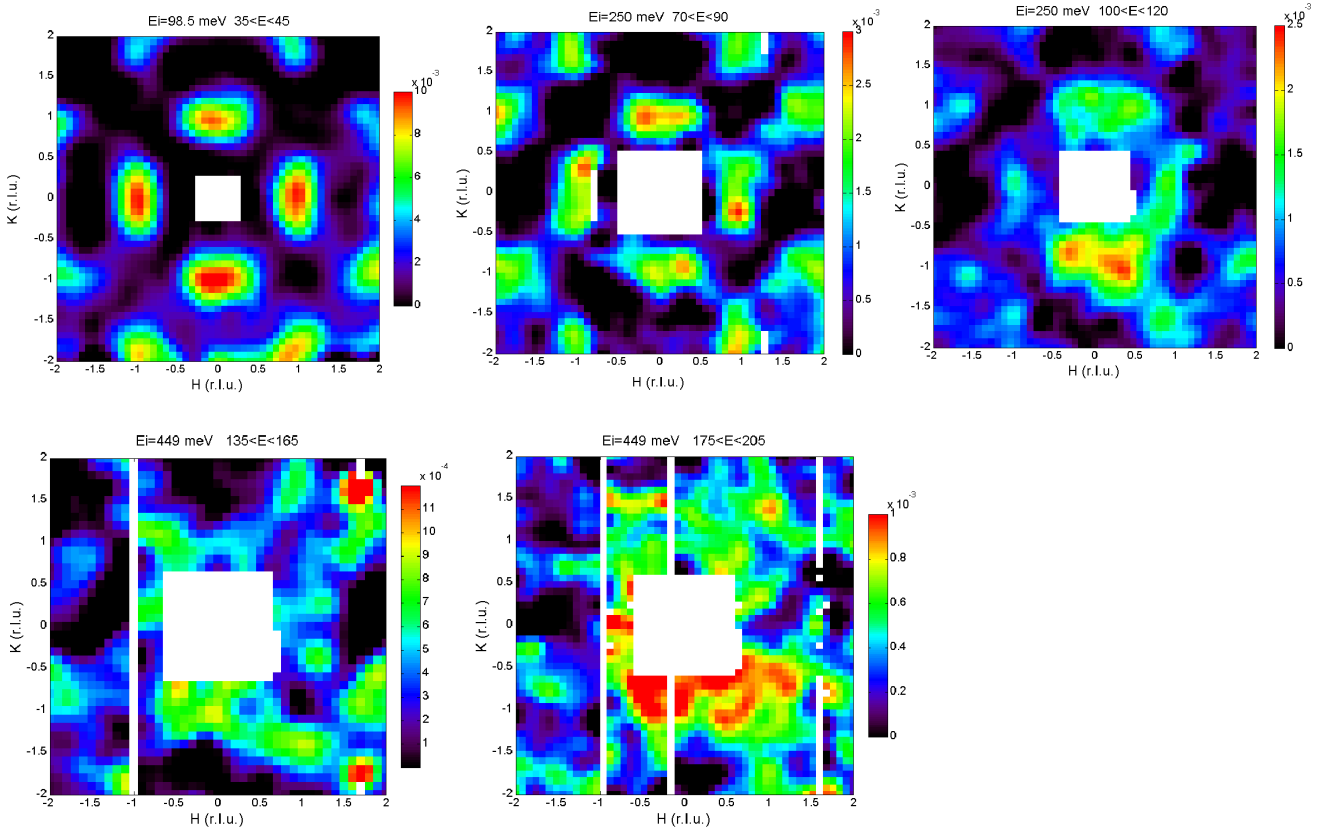
2. Experiment

We chose the incident energy and chopper frequency as following: $E_i = 450$ meV, $f = 250$ Hz (including multi- E_i s: 450, 98.5, 42, 23, 14 meV), and $E_i = 450$ meV, $f = 250$ Hz (including multi- E_i s: 250, 73, 37, 20, 13 meV). We measured the whole spin excitations spectrum at base-temperature with k_i parallel to c -axis.

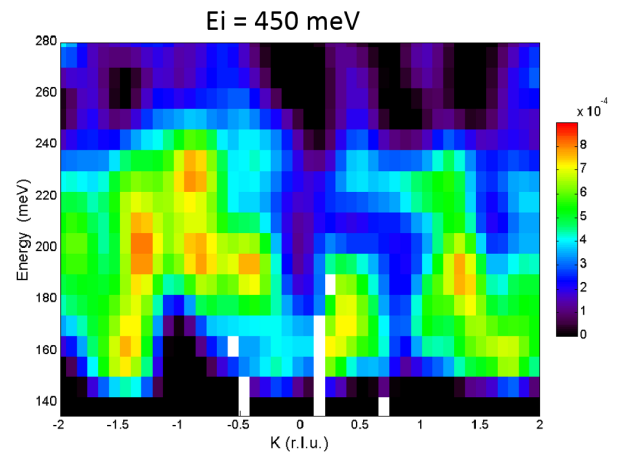
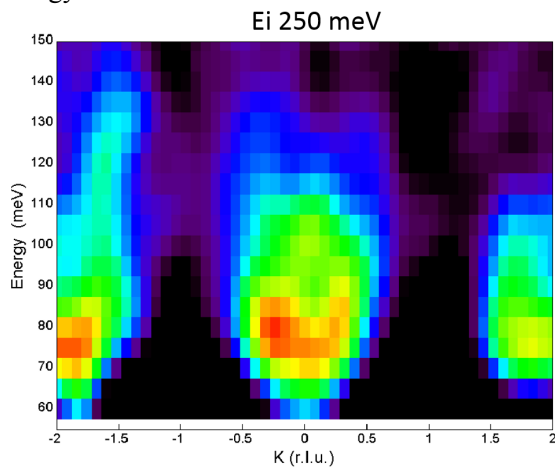
3. Results

The experiment is successful, though the statistics of the high energy data is not perfect due to the limit of counting time. Some specific slices are shown as following:

Constant energy cuts:



Energy verse K cuts:



4. Conclusion

The band top of the 112-type iron based superconductor here can be clearly seen around 230 meV, which is a little higher than the 122 system. We will analysis the data systematically and yield a publication in the near future.