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**Closed-channel fraction of a strongly interacting Fermi Gas.** XIANG-PEI LIU, HAO-ZE CHEN, XING-CAN YAO, XIAO-QIONG WANG, YU-XUAN WANG, YU-PING WU, University of Science and Technology of China, QI-JIN CHEN, ZHEJIANG University, YU-AO CHEN, JIAN-WEI PAN, University of Science and Technology of China — Near a Feshbach resonance, the many-body state of paired atoms is the so-called dressed molecule which can be understood as a linear combination of open-channel atom pairs and closed-channel bare molecules. The closed-channel fraction plays a crucial role in the description of the BEC-BCS crossover since it quantifies the mixing between the atom pairs and the bare molecules. In this presentation, I will first show the experimental procedure for producing of large degenerate Fermi gas. With advanced laser cooling and sympathetic cooling, we are able to obtain a maximum molecule number of $310^6$ at $T/T_F$˜0.06. The low temperature and large atom number allow us to study the closed-channel fraction over a wide parametric range (scattering length, fermi momentum and temperature). With a molecule probe laser, we are able to extract the closed-channel fraction in the BEC-BCS crossover. Experimental results show a good agreement with the prediction of two-channel model.

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