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**Observation of Feshbach resonances between ultracold Na and Rb atoms** FUDONG WANG, DEZHI XIONG, XIAOKE LI, DAJUN WANG, Department of Physics, The Chinese University of Hong Kong — Absolute ground-state  $^{23}\text{Na}^{87}\text{Rb}$  molecule has a large electric dipole moment of 3.3 Debye and its two body exchange chemical reaction is energetically forbidden at ultracold temperatures. It is thus a nice candidate for studying quantum gases with dipolar interactions. We have built an experiment setup to investigate ultracold collisions between Na and Rb atoms as a first step toward the production of ground state molecular samples. Ultracold mixtures are first obtained by evaporative cooling of Rb and sympathetic cooling of Na. They are then transferred to a crossed dipole trap and prepared in different spin combinations for Feshbach resonance study. Several resonances below 1000 G are observed with both atoms prepared in either  $|F = 1, m_F = 1\rangle$  or  $|F = 1, m_F = -1\rangle$  hyperfine states. Most of them are within 30 G of predicted values<sup>§</sup> based on potentials obtained by high quality molecular spectroscopy studies. This work is supported by RGC Hong Kong.

§ E. Tiemann, private communications

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