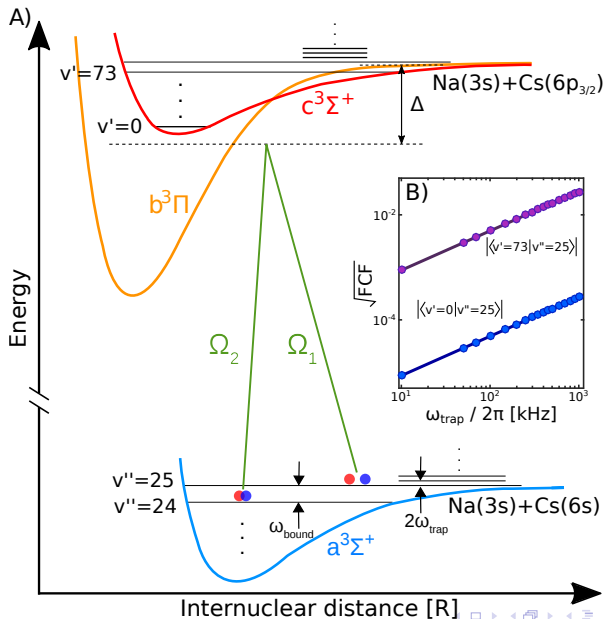# NaCs* update

Yichao Yu

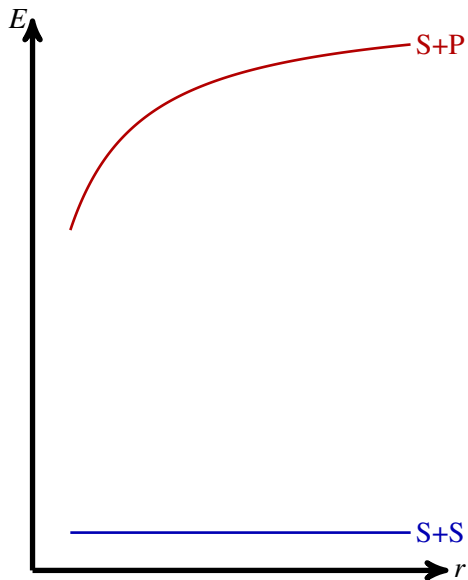Ni Group/Harvard

Sep. 22, 2017
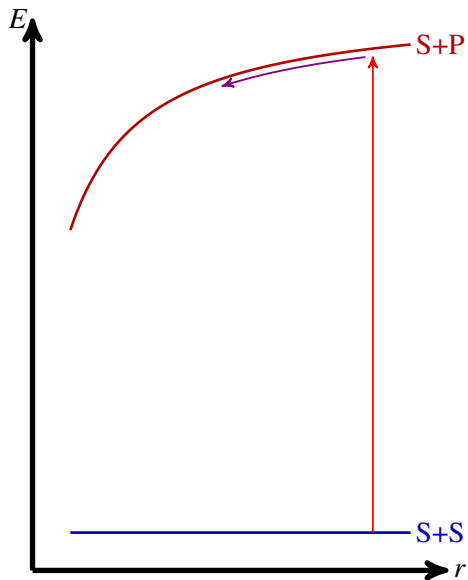
Making molecules
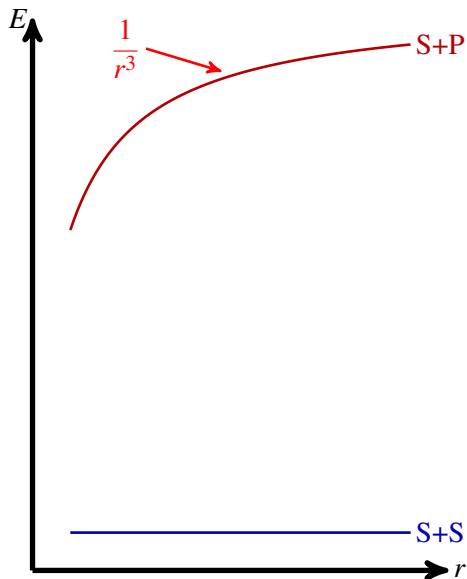
Light-assisted collision

Light-assisted collision

Light-assisted collision

$$V_{Cs+Na} \propto \frac{1}{r^6}$$
$$d_{Cs,S \to P} \approx 11.4D$$
$$V_{Cs+Cs}(100nm) \approx 4MHz$$
$$V_{Cs+Na}(5nm) \approx 4MHz$$

Light-assisted collision
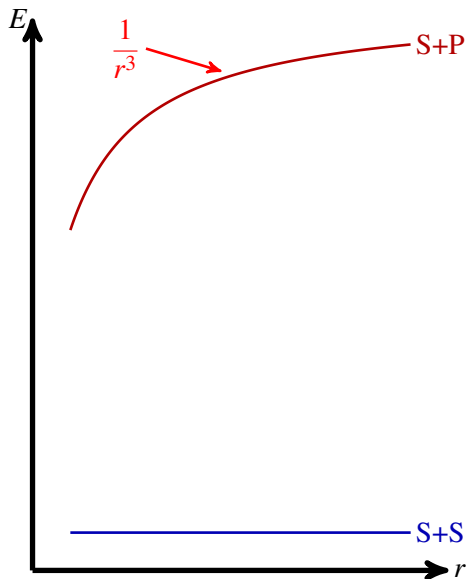

$$V_{Cs+Na} \propto \frac{1}{r^6}$$

$$d_{Cs,S \to P} \approx 11.4D$$

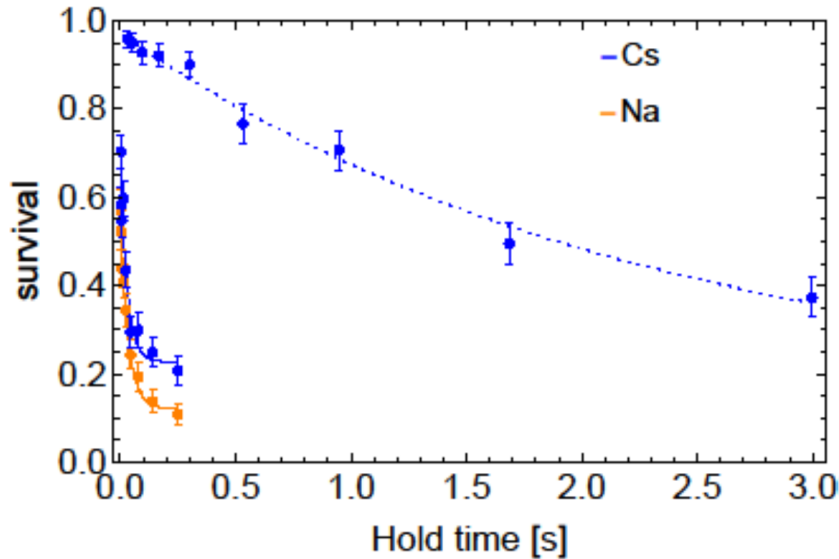$$V_{Cs+Cs}(100nm) \approx 4MHz$$

$$V_{Cs+Na}(5nm) \approx 4MHz$$

Conclusion

Photo association between Na and Cs requires much higher intensity.
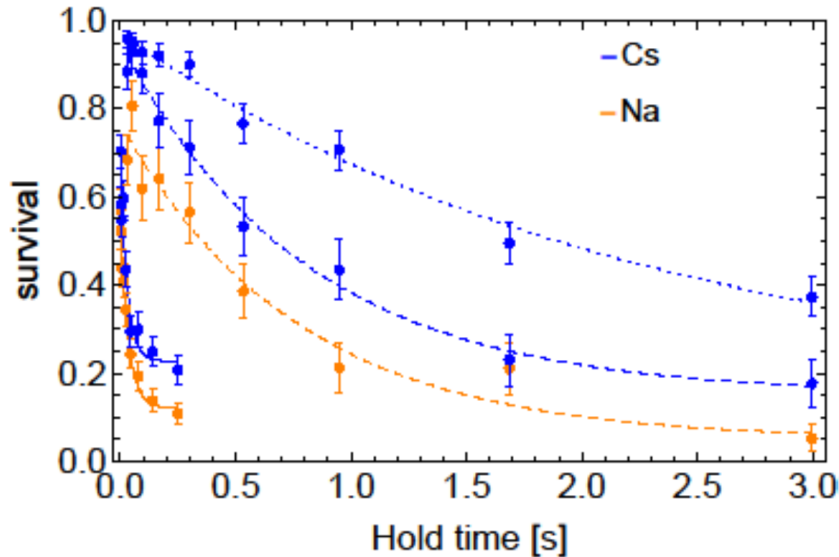
Two body loss

Two body loss

Photo association

Photo association

D1 + D2

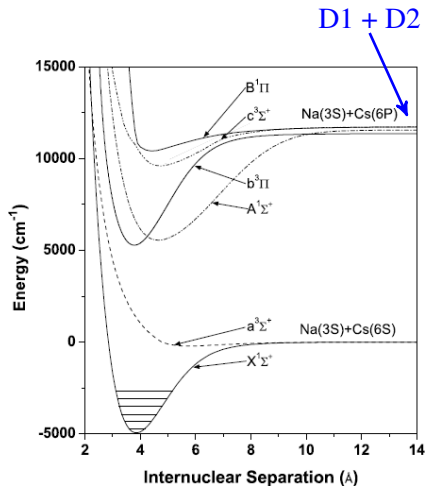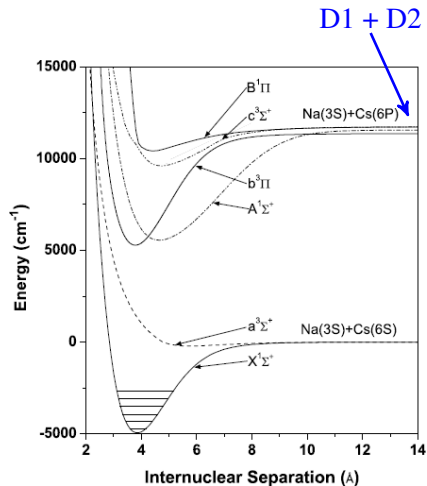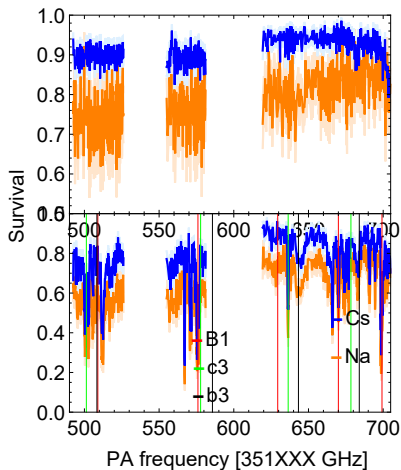## Current/next step

- Get atoms cold again
- Prepare hyperfine state
- Find molecular ground state