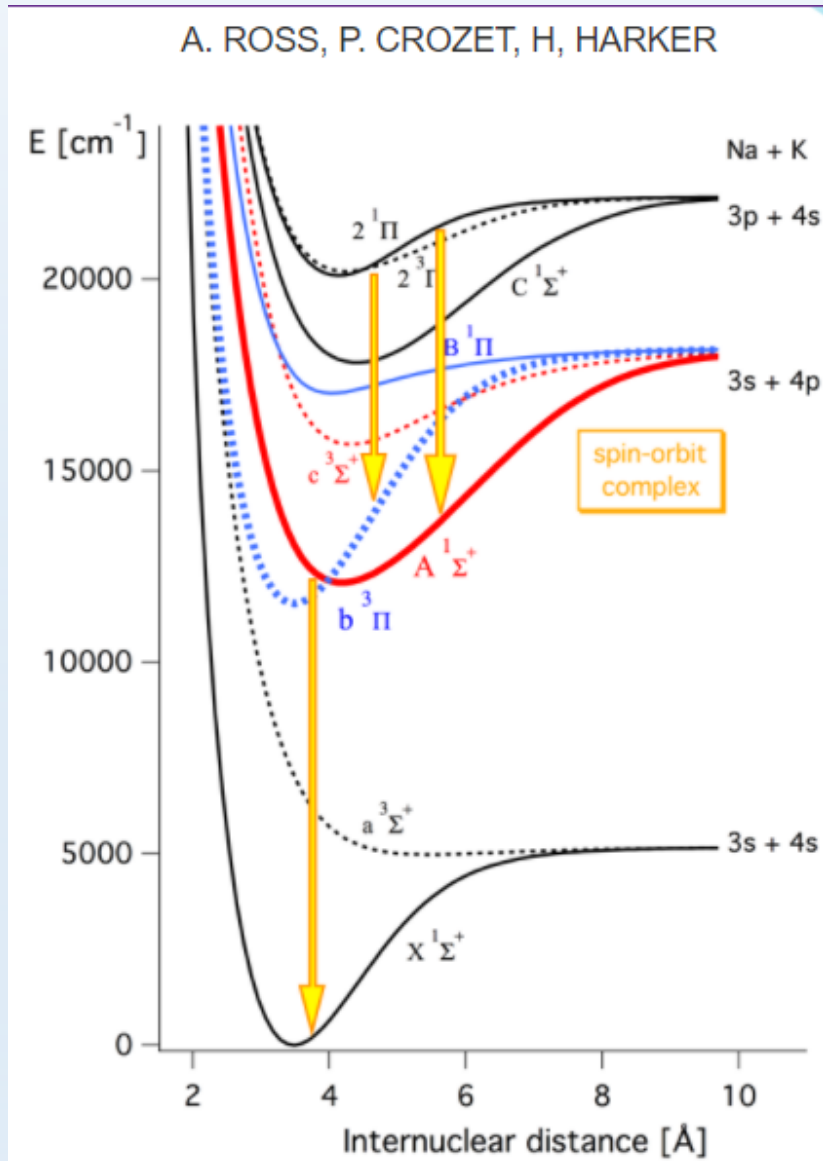


Atomic interactions

Internuclear potential for neutral alkalis



NaK potentials,
Amanda Ross and
co-workers

Elastic collisions in neutrals

Two-body elastic collisions in dilute atomic gases

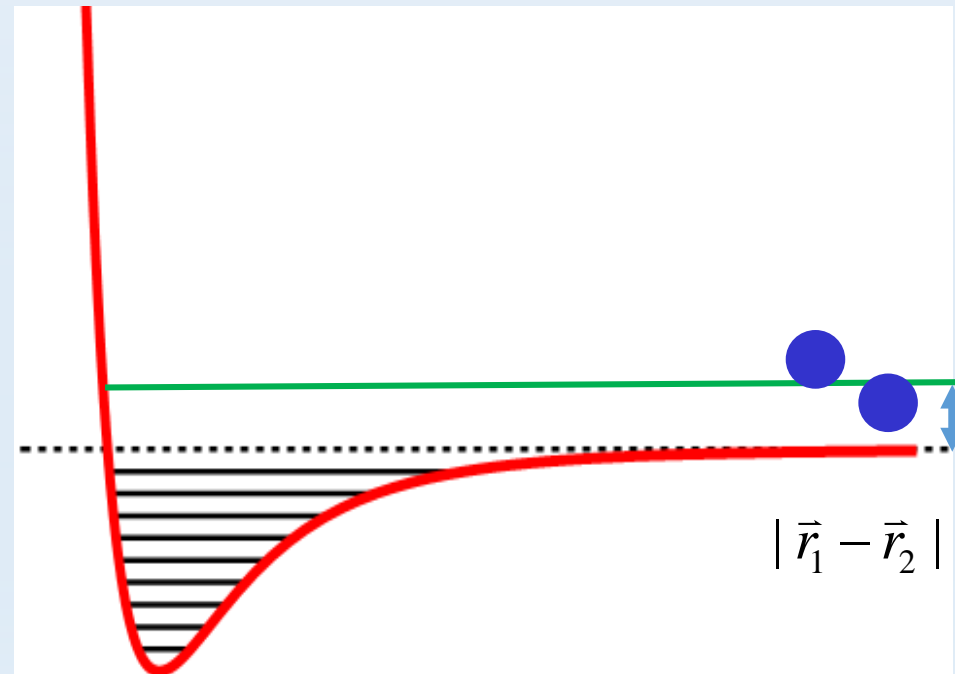
~ **density of air** / 10^5

→ mainly concerned with two-body collisions

~ **room temperature** / 10^8

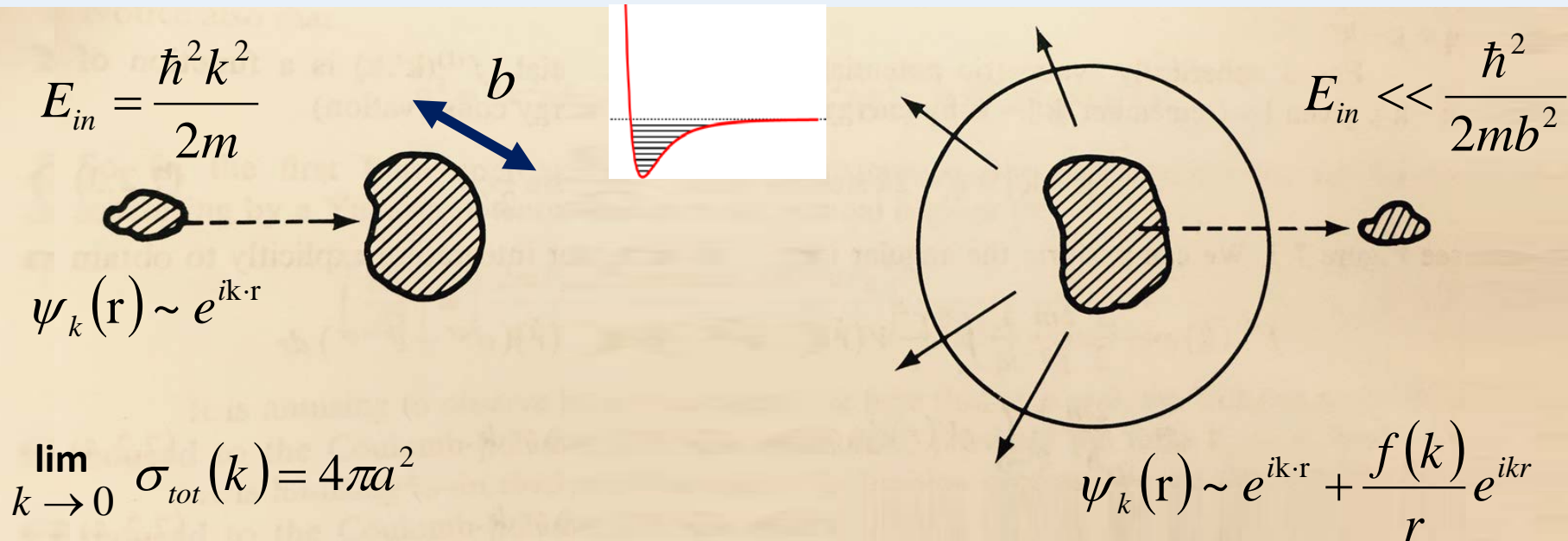
→ treat collisions quantum mechanically

metastable: two-body elastic collisions



Low-energy collisions

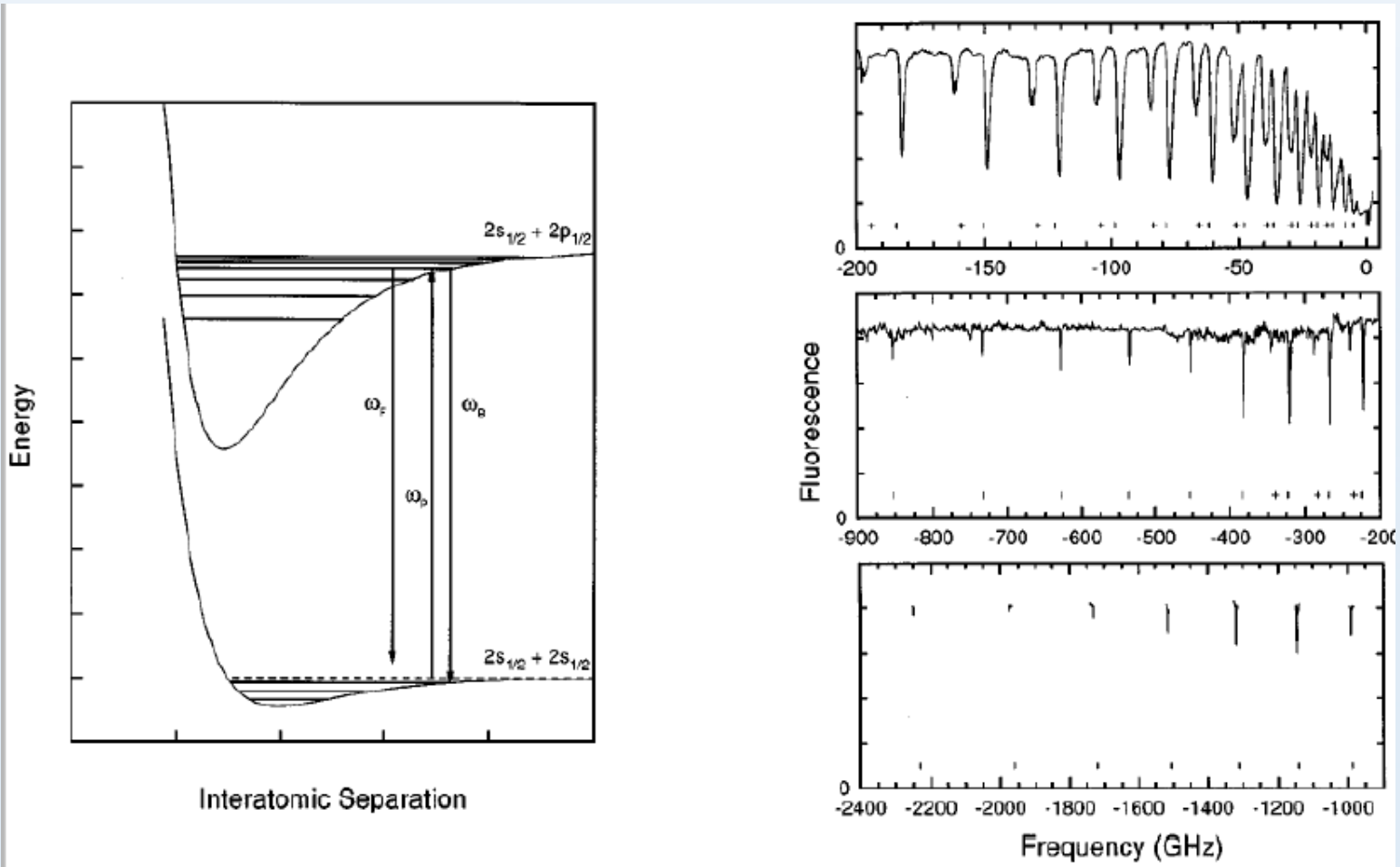
Cold and dilute = “textbook” microscopic physics



Sakurai, *Modern QM*

Experimenting on scattering physics

Lots and lots of information from spectroscopy / photochemistry



Heinzen group

Experimenting on scattering physics

Perturb the density, see timescale for relaxation

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PHYSICAL REVIEW LETTERS

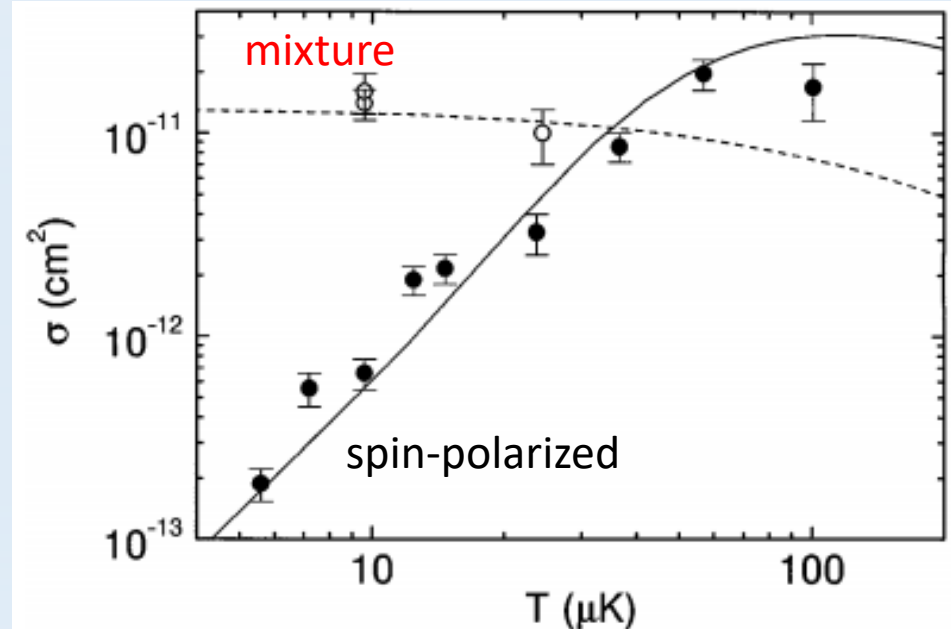
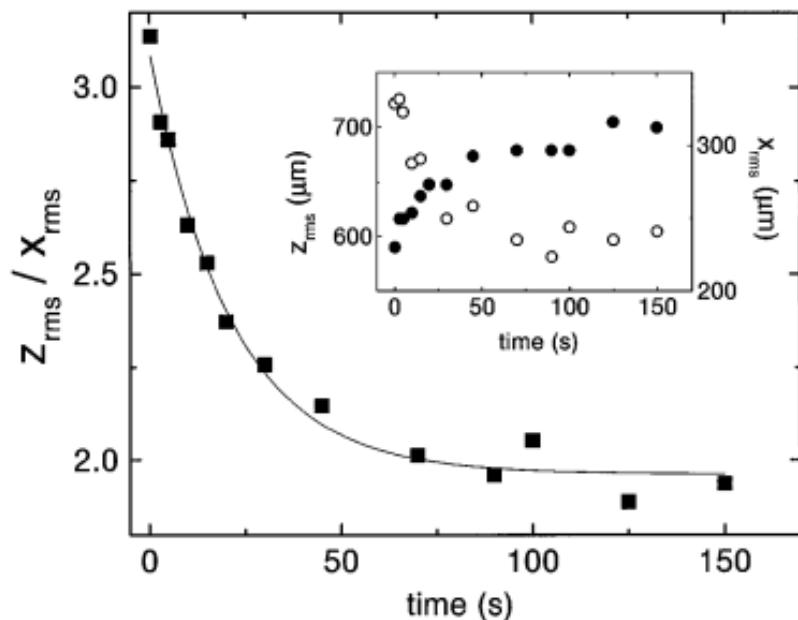
24 MAY 1999

Measurement of p -Wave Threshold Law Using Evaporatively Cooled Fermionic Atoms

B. DeMarco, J. L. Bohn, J. P. Burke, Jr., M. Holland, and D. S. Jin*

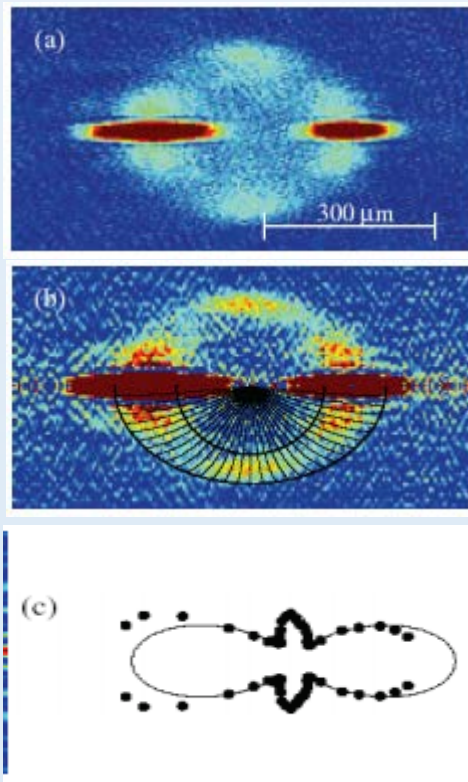
*JILA, National Institute of Standards and Technology and University of Colorado, Boulder, Colorado 80309
and Physics Department, University of Colorado, Boulder, Colorado 80309*

(Received 21 December 1998)

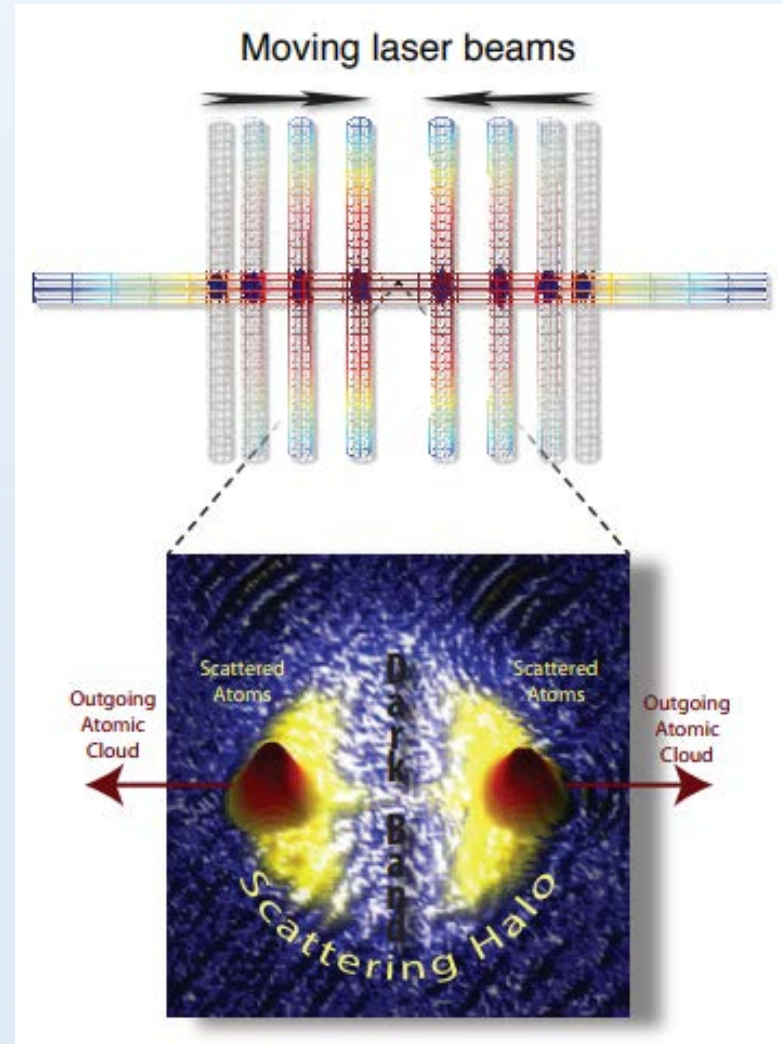


Experimenting on scattering physics

“Little collider” experiments
Kjaergaard group, Dunedin



^{87}Rb atoms



^{40}K atoms, 150 μK collision