Abstract Submitted
for the DAMOP19 Meeting of
The American Physical Society

Controlling the dynamics of cold molecular collisions JAMES CROFT, University of Otago, NADUVALATH BALAKRISHNAN, University of Nevada Las Vegas — The dynamics of many chemical processes are determined by the relative orientation of colliding molecules. Here, we report results of quantum dynamics calculations for cold collisions of rotationally excited HD with H_2, and examine how the collisional dynamics can be controlled by varying the initial alignment of the HD. Such control over the alignment of colliding molecules is now experimentally possible using the SARP method. Taking rotational quenching rates as an example we show that the rate can be maximised by aligning the HD along the relative collision axis and minimised by aligning the HD at the so called magic angle.

James Croft
University of Otago

Date submitted: 28 Jan 2019 Electronic form version 1.4