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Quantum jump dynamics in a trapped barium ion JENNIFER LILIEHOLM, MICHAEL CLANCY, JAMES STEERE, BORIS BLINOV, University of Washington — We are investigating the dynamics of quantum jumps and have set up a system to study them using singly trapped barium ions. Our system is a modified Paul trap containing a parabolic mirror, which allows for light collection from 39% of the solid angle surrounding the trapped barium ion. This high light collection gives us the ability to quickly detect when a quantum jump occurs.

Following the work of Minev et al[1] where they demonstrated the ability to predict quantum jumps in a superconducting artificial atom, we plan to investigate the occurrence of quantum jumps in a single trapped barium ion.

[1]Minev, Z. K., et al. "To catch and reverse a quantum jump mid-flight." arXiv preprint arXiv:1803.00545 (2018).

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