

Abstract Submitted  
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**Controlling a Bose-Einstein Condensate in Space: Towards Space Based Atom Interferometry**<sup>1</sup> NICHOLAS BIGELOW, University of Rochester, NACEUR GAALOUL, Institut für Quantenoptik, Leibniz Universität Hannover, Germany, MATTHIAS MEISTER, Institut für Quantenphysik, Universität Ulm, Germany, ANNIE PICHERY, Institut für Quantenoptik, Leibniz Universität Hannover, Germany, Institut des Sciences Moléculaires d'Orsay, Université Paris-Saclay, France, WALDEMAR HERR, ERNST RASEL, Institut für Quantenoptik, Leibniz Universität Hannover, Germany, WOLFGANG SCHLEICH, Institut für Quantenphysik, Universität Ulm, Germany, ROBIN CORGIER, Institut für Quantenoptik, Leibniz Universität Hannover, Germany, PATRICK BOEGEL, Institut für Quantenphysik, Universität Ulm, Germany, ROBERT THOMPSON, JASON WILLIAMS, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109, USA — We describe recent experimental work aboard the International Space Station using the NASA facility CAL, the Cold Atom Laboratory. We will describe significant progress on quantum gas manipulation in microgravity using short cuts to adiabaticity (STA) protocols and on delta kick cooling (DKC) in Space. We describe our success in the context of enabling high performance atom interferometry in space.

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Nicholas Bigelow  
University of Rochester

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