NASA’s Cold Atom Laboratory (CAL): system integration and ground tests DAVID AVELINE, ETHAN ELLIOTT, JASON WILLIAMS, ROB THOMPSON, Jet Propulsion Laboratory — We report on the current status of NASA’s Cold Atom Laboratory (CAL), an ultracold quantum gas instrument developed by NASA’s Jet Propulsion Laboratory (JPL). Once installed inside the International Space Station (ISS), it will provide the first persistent quantum gas platform in the microgravity environment of space. CAL is a multi-user facility equipped with rubidium and bosonic potassium atoms, allowing production of quantum gas mixtures and a wide range of fundamental physics studies. In microgravity, the confining potentials for cold atoms can be arbitrarily weakened to gain access to ultra-low densities and pikoKelvin temperatures. This new parameter regime enables ultracold atom research by an international group of researchers with broad applications in fundamental physics and inertial sensing. We describe the integration and ground testing as the CAL instrument prepares for launch to the ISS.