



Ultracold Atom Systems

Products	Table Top System	Mobile System
RuBECi®	Yes	Yes
Physics Station	Choice	Yes
Physics Platform	Choice	No
Laser System	Yes	Yes
Electronics System	Yes	Yes
Coil Assembly	Yes	Yes
Magnet Assembly	Yes	Yes
Transfer Coil	Yes	Yes

All components may be purchased separately



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BEC and Ultracold Atom Products

Devices and Systems Designed to Simplify the Production of BEC and Ultracold Atoms

- RuBECi®
- Physics Station
- Laser System
- Electronics Package
- Coils and Magnets



qUCAL



RuBECi®: Features

- 2 UHV chambers
- Upper chamber better than 10^{-9} Torr
- Passive pumps
- Single miniature ion pump
- Integrated atom chip
- Rapid BEC production
- Superb optical access

**MOBILE, COMPACT AND FULLY INTEGRATED
 COLDQUANTA'S ULTRACOLD ATOM LAB**

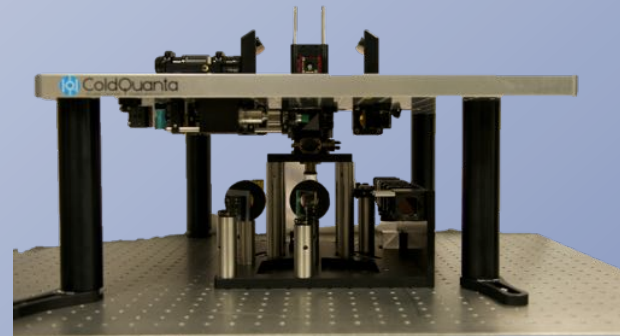
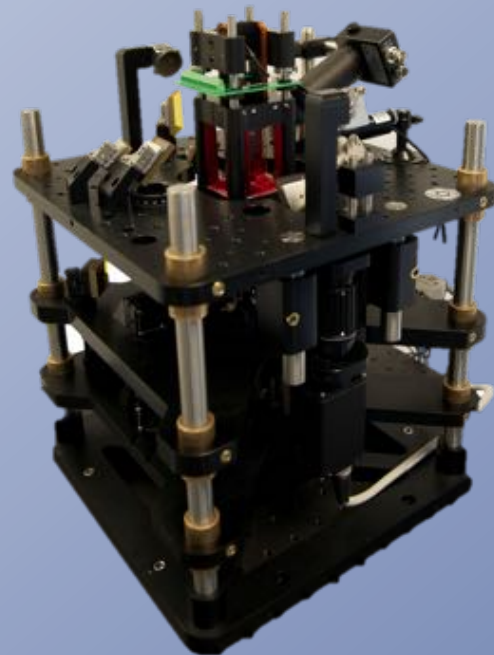
ColdQuanta's Ultracold Atom Product Line

Chose from complete systems with physics packages or from stand-alone devices such as the RuBECi® with individual accessories. Complete systems include full electronics packages and laser systems allowing for rapid set-up and deployment.

ColdQuanta's Physics Station

turns the RuBECi into a complete physics package with mounts and CCD camera. It is pre-aligned for rapid deployment and includes:

- A four-stage assembly connected by guide rails.
- Mounting hardware to hold a ColdQuanta RuBECi cell.
- Optics and hardware for beam shaping and alignment of a 2D(+) MOT, a 3D MOT, an optical pumping beam and an imaging beam.
- Connectorized fiber inputs for external laser light.
- A CCD camera and lens assembly for imaging of the atoms in all stages of the BEC production process.



The Physics Platform is an optical and optomechanics package for producing ultracold atoms in a ColdQuanta RuBECi cell (RuBECi is not included). This highly flexible configuration consists of:

- A 2' x 2' optics table with all optics and hardware needed for producing a 3D MOT and optical pumping along a single axis of the system.
- An independent 2D MOT optics package including a fiber launching plate with beam-shaping optics.

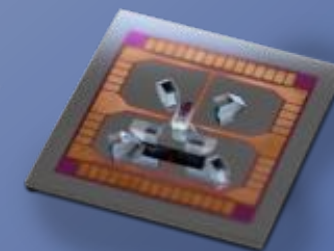
Accessories

Coil Assembly
Magnet Assembly
Transfer Z Coil

Electronics Package

Designed specifically for ColdQuanta's range of BEC products and includes:

- ColdQuanta Chip Driver
- ColdQuanta Coil Driver
- ColdQuanta Z Coil Driver
- ColdQuanta RF Driver (DDS Synthesizer)
- ColdQuanta Computer Control System *



Optical Lattice Chip

- Capable of producing ultracold gasses and 1D to 3D optical lattices.
- On chip optical elements for directing and retro-reflecting three user input beams.
- Glass window above the lattice provides optical access for through chip high-resolution imaging of lattice trapped atoms.

ColdQuanta Laser System

A 780 nm system used for cooling, repumping, optical pumping, and imaging. Cooling and repump light are amplified with a tapered amplifier, and split into two outputs for 2D and 3D MOTs. Highlights of the system include:

- Spectroscopy module and feedback electronics for absolute frequency stabilization of the master laser.
- Fiber-optic shutters and drivers for rapid (<1 μ s) blocking of optical pumping and imaging beams.
- Mechanical shutters and drivers for high extinction of all laser beams.
- Voltage inputs for controlling the frequencies of the two phase-locked lasers.
- Fiber couplers, patch cables, free-space optics and optomechanics.
- All laser control electronics (e.g. laser current sources and temperature controllers, tapered amplifier controller, feedback electronics, phase-lock loop photo detectors and electronics, and power supplies).

** Computer source code may be purchased as a stand-alone product*