

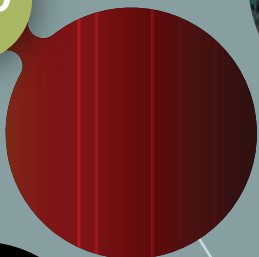
NISTory of the Periodic Table

Krypton:

Wavelengths of light from this atom, measured by NIST researchers, defined the official meter until 1983.

Image Credit: Neil Tucker/Wikimedia

1960



1931

Deuterium:

This rare heavy isotope of hydrogen was concentrated at NIST and then identified by Columbia University's Harold Urey (Nobel Prize 1934).

On the left is a deuterium lamp; the light on the right comes from the NIST SURF III Synchrotron Ultraviolet Radiation Facility.

Image Credit: Uwe Arp/NIST



Cesium:

The frequency of microwave radiation from this atom is used to define the second, measured in atomic clocks such as the NIST F2 (2014).

Image Credit: NIST

1967



Sodium:

NIST scientists used lasers to cool a gas of these atoms to lower-than-predicted temperatures near absolute zero. (Nobel Prize 1997)

Image Credit: H.Mark Helfer/NIST

1988

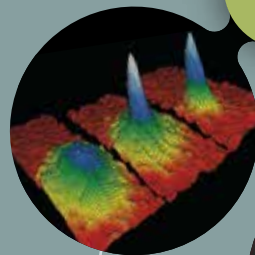


Rubidium:

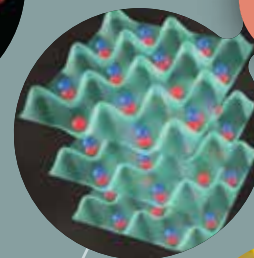
The atoms that created the first Bose-Einstein condensate, made by researchers at JILA (NIST-University of Colorado). (Nobel Prize 2001)

Image Credit: NIST/JILA/CU-Boulder

1995



2008

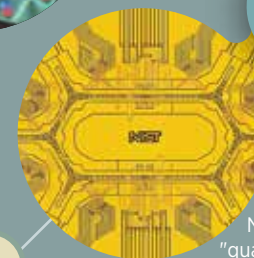


Potassium and Rubidium:

JILA researchers married these elements into an ultracold gas of molecules and demonstrated striking predictions of quantum physics, by hitting the atoms with "rulers of light" known as frequency combs (Nobel Prize 2005) and trapping them in webs of light known as optical lattices.

Image Credit: Steven Burrows and Ye/Jin groups/JILA

2010 /2011



Beryllium and Aluminum:

Individual ions of these atoms were probed in a NIST trap to create "quantum logic" clocks that measured the second more precisely than before and tested Einstein's general theory of relativity. Such quantum manipulations were recognized in the 2012 Nobel Prize.

Image Credit: J. Amini/NIST