

## Historical Perspective – Atomic Structure

Dalton's theory of identical atoms	1803	
		1876 Custer's Last Stand
Cathode rays, William Crookes	1879	
"Electron," G. Johnstone Stoney	1881	
Balmer observed the visible spectrum of H	1884	
Cathode rays, Eugen Goldstein	1886	
Becquerel discovered radioactivity	1896	
Electron e/m, J.J. Thomson	1897	1897 Klondike gold rush
		1898 Spanish-American War
$E = hv$ , Max Planck	1900	
		1903 Wright Brothers flight at Kitty Hawk
Quantized radiation, Albert Einstein	1905	
Charge on electron, Robert A. Millikan	1909	
Nuclear atom, Ernest Rutherford	1911	
Bohr's theory of planetary electrons	1913	
Meaning of atomic number, Henry Moseley	1913	
Rutherford & Soddy discovered isotopes		
		1914 World War I begins
		1911 Russian Bolshevik Revolution
Rutherford transmuted $^{14}\text{N}$ to $^{17}\text{O}$ by $\alpha$ bombardment		1919 Treaty of Versailles ends WWI
$\lambda = h / mv$ , Louis de Broglie	1923	
Wave/mechanical atomic model Schrodinger	1926	
Uncertainty principle, Werner Heisenberg		
Electron diffraction, Davisson and Germer	1927	1927 Transatlantic flight by C. Lindbergh
		1929 U.S. stock market crash, beginning of Depression
Neutron in beam from Be by $\alpha$ bombardment	1932	
		1933 Adolf Hitler became Chancellor of Germany
Hahn & Strassmann discovered atomic fission	1939	
		1945 Hiroshima & Nagasaki Destroyed by fission bombs
Nuclear fusion bomb ( $\text{H}_2$ bomb) at Bikini Atoll	1952	
		1956 First nuclear fission Power-Station, Calder Hall, Cumbria
Attempts to harness nuclear fusion, the Hunting of the quark.	1960s	
Development of theories of matter Particles based on quarks and leptons.	1970's	
Discovery of bosons, search for 'Grand Universal discovery'.	1980s	