

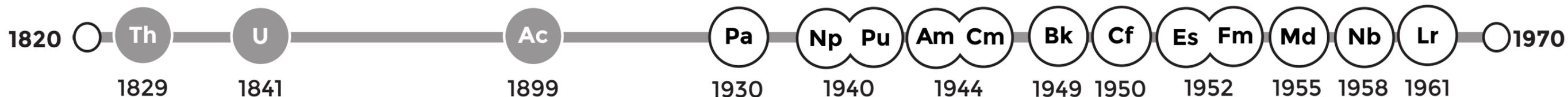
# The Actinides

THE ACTINIDES ARE DENSE, RADIOACTIVE METALS, MANY OF WHICH ARE UNSTABLE, AND THE MAJORITY OF WHICH ARE MADE SYNTHETICALLY

89 Ac Actinium	90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium
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## DATES OF DISCOVERY OF THE ACTINIDES

● NATURALLY ABUNDANT ○ SYNTHETICALLY PRODUCED



THE ACTINIDES ALL FORM  
**STABLE +3 IONS**

**BERKELIUM IS THE  
RAREST**

**Bk**

NATURALLY  
OCCURRING  
ELEMENT

(NO MORE THAN A FEW ATOMS AT  
A TIME IN URANIUM DEPOSITS)



SOME ACTINIDES HAVE  
OXIDATION STATES  
OF VARYING COLOURS



**URANIUM &  
PLUTONIUM  
ARE USED FOR  
NUCLEAR POWER**

**THORIUM CAN FORM  
MORE COVALENT BONDS  
THAN ANY OTHER ELEMENT**

**14**



**THORIUM IS A  
PYROPHORIC  
ELEMENT**

(IGNITES SPONTANEOUSLY IN AIR)

**CURIUM IS SO  
RADIOACTIVE  
THAT IT  
GLOWS PURPLE**

**Cm**

ACTINIDES NAMED AFTER FAMOUS SCIENTISTS



**CURIUM  
MARIE CURIE**

WON NOBEL PRIZE FOR WORK ON RADIOACTIVITY & ALSO DISCOVERED POLONIUM AND RADIUM



**EINSTEINIUM  
ALBERT EINSTEIN**

DEVELOPED GENERAL THEORY OF RELATIVITY & WON NOBEL PRIZE FOR WORK ON PHOTOELECTRIC EFFECT



**FERMIUM  
ENRICO FERMI**

WON NOBEL PRIZE FOR WORK ON RADIOACTIVITY & ALSO CONSTRUCTED THE FIRST NUCLEAR REACTOR



**MENDELEVIUM  
DMITRI MENDELEEV**

CREATED THE MODERN PERIODIC TABLE & USED IT TO PREDICT PROPERTIES OF UNDISCOVERED ELEMENTS



**NOBELIUM  
ALFRED NOBEL**

THE INVENTOR OF DYNAMITE, & LEFT HIS FORTUNE AFTER HIS DEATH TO FOUND THE NOBEL PRIZES



**LAWRENCIUM  
ERNEST LAWRENCE**

WON A NOBEL PRIZE FOR THE INVENTION OF THE CYCLOTRON, A TYPE OF PARTICLE ACCELERATOR