Answer on Question #49893 – Chemistry - Physical Chemistry

The elements in which electrons are progressively filled in 4f orbitals are called ?

Answer:

The elements in which electrons are progressively filled in 4f orbitals are called Lanthanides.

Elements	Symbol and at. no.	Outer electronic configuration [$_{54}$Xe]	
		expected	observed
Lanthanum	$_{57}$La	$6s^2, 4f^0, 5d^1$	$6s^2, 4f^0, 5d^1$
Cerium	$_{58}$Ce	$6s^2, 4f^1, 5d^1$	$6s^2, 4f^2, 5d^0$
Prasodymium	$_{59}$Pr	$6s^2, 4f^2, 5d^1$	$6s^2, 4f^3, 5d^0$
Neodymium	$_{60}$Nd	$6s^2, 4f^3, 5d^1$	$6s^2, 4f^4, 5d^0$
Promethium	$_{61}$Pm	$6s^2, 4f^4, 5d^1$	$6s^2, 4f^5, 5d^0$
Samarium	$_{62}$Sm	$6s^2, 4f^5, 5d^1$	$6s^2, 4f^6, 5d^0$
Europium	$_{63}$Eu	$6s^2, 4f^6, 5d^1$	$6s^2, 4f^7, 5d^0$
Gadolinium	$_{64}$Gd	$6s^2, 4f^7, 5d^1$	$6s^2, 4f^7, 5d^1$
Terbium	$_{65}$Tb	$6s^2, 4f^8, 5d^1$	$6s^2, 4f^9, 5d^0$
Dysprosium	$_{66}$Dy	$6s^2, 4f^9, 5d^1$	$6s^2, 4f^{10}, 5d^0$
Holmium	$_{67}$Ho	$6s^2, 4f^{10}, 5d^1$	$6s^2, 4f^{11}, 5d^0$
Erbium	$_{68}$Er	$6s^2, 4f^{11}, 5d^1$	$6s^2, 4f^{12}, 5d^0$
Thulium	$_{69}$Tm	$6s^2, 4f^{12}, 5d^1$	$6s^2, 4f^{13}, 5d^0$
Ytterbium	$_{70}$Yb	$6s^2, 4f^{13}, 5d^1$	$6s^2, 4f^{14}, 5d^0$
Lutetium	$_{71}$Lu	$6s^2, 4f^{14}, 5d^1$	$6s^2, 4f^{14}, 5d^1$