

PTI

<p>Isoview: view isotope data of U Uranium (page1,2) symbol, mass, abundance %, half-life, decay modes, decay energy, spin parity (1s)</p>	<pre> U Uranium 238.028932 U215 215.02676 '1.4_Hs' 'α' '3' U216 216.02476 '6.9_Hs' 'α' '3' U217 217.02437 '8.5_Hs' 'α' '3' U218 218.02354 '35_Hs' 'α' '8.7' U219 219.02492 '60_μs' 'α' '9.86' U220 220.02472 '1' 'α,β+' '0' U221 221.0264 '66_μs' 'β+' '0' U222 222.02609 '4.7_μs' 'α,β+' '0' U223 223.02774 '65_μs' 'α' '8.94' U224 224.027605 '396_Hs' 'α' '8' U225 225.02939 '62_Hs' 'α' '8.02' +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> U226 226.029339 '269_Hs' 'α' '7' U227 227.031156 '1.1_Min' 'α,β+' '0' U228 228.031374 '3.1_Min' 'α,β+' '0' U229 229.033506 '58_Min' 'β+(30)' U230 230.03394 '20.23_d' 'α(100)' U231 231.036234 '4.2_d' 'α,β+' '0' U232 232.037156 '68.9_μs' 'α,SF(5)' U233 233.039635 '1.592E5_yr' 'α' U234 234.040952 '245500_yr' '0054' U235 235.04393 '7.038E8_yr' '0072' U236 236.045568 '2.342E7_yr' 'α' U237 237.04873 '6.75_d' 'β-,SF(9)' U238 238.0507882 '4.468E9_yr' '99' U239 239.0542933 '23.45_Min' 'β-' U240 240.056592 '14.1_h' 'β-,α(1)' U242 242.06293 '16.8_Min' 'β-' +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>
<p>Isoview: view isotope data of U Uranium</p>	<pre> U231 231.036234 '4.2_d' 'α,β+' '0' U232 232.037156 '68.9_μs' 'α,SF(5)' U233 233.039635 '1.592E5_yr' 'α' U234 234.040952 '245500_yr' '0054' U235 235.04393 '7.038E8_yr' '0072' U236 236.045568 '2.342E7_yr' 'α' U237 237.04873 '6.75_d' 'β-,SF(9)' U238 238.0507882 '4.468E9_yr' '99' U239 239.0542933 '23.45_Min' 'β-' U240 240.056592 '14.1_h' 'β-,α(1)' U242 242.06293 '16.8_Min' 'β-' +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> 2: 1: U235 235.04393 "7.038E8_yr .0072" "α,SF(7E-9)" "4.679" "7/2-" +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>
<p>Isoget: get data of specific isotope</p>	<pre> +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> pte Isoda Isoga Isoua Decay +Deco 40,β+ "8.54" "3" "U223" 223.02774 '65_μs' 'α' '8.54' "3" 3 "U224 234.027605 '396_Hs' 'α' 8.62 "0+" "3" "U225 225.02939 ' 62_Hs' 'α' '8.02' "3" "U226 226.029339 '269_Hs' 'α' '7.15' "0+" "3" "U227 227.031156 '1.1 Min' 'α,β+(.001)" "7.211" "3" "U228 228.031374 '3.1_Min' "3" "α,β(5)" "6.804,307" "0+" "3" U229 229.033506 '58_Min' "β+(30),α" "1.309,6.475" "3" " +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>
<p>Isoview: U list of data is in stack 2</p>	<pre> +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>
<p>Isoview: Carbon C</p>	<pre> C Carbon 12.01078 C8 8.0376743 '3.5E-21_s' "2p" C9 9.031037 '1265_s' "β+p,β+α(3) C10 10.016853 '19.3_s' "β+p,β+α(3) C11 11.011433 '20.36_Min' "β+(39) C12 12 "98.93" "0" C13 13.003355 "1.07" "β-" "31. C14 14.003242 '5730_yr' "β-" "31. C15 15.010599 '2.449_s' "β-" "9. C16 16.014701 '747_s' "β-n,β-(2. C17 17.022579 '193_s' "β-,β-n(2. C18 18.02675 '092_s' "β-,β-n(31. +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> C12 12 "98.93" "0" C13 13.003355 "1.07" "β-" "31. C14 14.003242 '5730_yr' "β-" "31. C15 15.010599 '2.449_s' "β-" "9. C16 16.014701 '747_s' "β-n,β-(2. C17 17.022579 '193_s' "β-,β-n(2. C18 18.02675 '092_s' "β-,β-n(31. +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>
<p>Decay: decay of Pu239 with Decay (1s) →Decay: selects first (main) decay (0.5s)</p>	<pre> 9: 8: 7: 6: 5: 4: 3: 2: 1: "Pu239" "α,SF(3E-10)" "Pu239→U235+α" "U235" +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> 9: 8: 7: 6: 5: 4: 3: 2: 1: "Pb207" +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>
<p>Decay: U231 gives two possibilities, →Decay selects the first</p>	<pre> 9: 8: 7: 6: 5: 4: 3: 2: 1: "U231" "α,α(.004)" "U231+β→Pa231" "Pa231" +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> 9: 8: 7: 6: 5: 4: 3: 2: 1: "Bi212" "β-(64.06) α" {"Bi212→Po212+β-"} {"Bi212→Tl208+α"} {"Tl208"} {"Po212"} +Dec HDeco A+BC AB+C AB+CD Stabl </pre>
<p>→Adecay: gives all decays</p>	<pre> +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> +Dec HDeco A+BC AB+C AB+CD Stabl </pre>
<p>Mdecay: gives the main decay chain of Pu239 step by step (1s)</p>	<pre> 9: 8: 7: 6: 5: 4: 3: 2: 1: "Pu239→U235+α" "U235→Th231+α" "Th231→Pa231+β-" "Pa231→Ac227+α" "Ac227→Th227+β-" "Th227→Ra223+α" "Ra223→Rn219+α" "Rn219→Po215+α" "Po215→Pb211+α" +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> 9: 8: 7: 6: 5: 4: 3: 2: 1: "Pb211→Bi211+β-" "Bi211→Tl207+α" "Tl207→Pb207+β-" "Pb207" +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>
<p>Pb207 is a stable isotope</p>	<pre> +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>
<p>stable isotopes with abundance in % (0.1s)</p>	<pre> RAD FROM Stable Isotopes Ag107: 51.83% Ag109: 48.17% Al27: 100% Ar36: 0.337% Ar38: 0.063% Ar40: 99.600% As75: 100% Au197: 100% +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> 9: 8: 7: 6: 5: 4: 3: 2: 1: "Ag107: 51.83%" "Ag109: 48.17%" +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>
<p>[OK] for Ag107, Ag109 puts them to stack</p>	<pre> +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>	<pre> +SKIP[SKIP+] +DEL DEL+ DEL L INS = </pre>

Stable isotopes of Xe	<div>Stable Isotopes</div> <div> ^{124}Xe: 0.10% ^{126}Xe: 0.09% ^{128}Xe: 1.91% ^{129}Xe: 26.4% ^{130}Xe: 4.1% ^{131}Xe: 21.2% ^{134}Xe: 10.4% ^{136}Xe: 8.9% </div>	<div>Stable Isotopes</div> <div> ^{64}Zn: 48.6% ^{66}Zn: 27.9% ^{67}Zn: 4.1% ^{68}Zn: 18.8% ^{70}Zn: 51.45% ^{91}Zr: 11.32% ^{92}Zr: 17.19% ^{94}Zr: 17.28% </div>
Stable isotopes of Zn, Zr		
AB→C: nuclear reaction (0.1s)	<div>"He3"</div> <div>"He3+n→He4"</div> <div>"H1"</div> <div>"He3"</div> <div>"H1+He3→Li4"</div>	<div>"He5"</div> <div>"He5+n→He4"</div> <div>"Ra226"</div> <div>"C14"</div> <div>"Ra226→C14+Pb209"</div>
A→BC: nuclear decay (0.1s)	<div>AB→C AB→CD Elx2 Stable HelpP</div>	<div>Stable AB→C A→BC AB→CD Elx2 HelpP</div>
NatDecay: natural decay chains (0.1s)	<div>natural decay chains</div> <div> $^{238}\text{Uranium}$: $^{238}\text{U} \rightarrow \dots$ $^{235}\text{Uranium}$: $^{235}\text{U} \rightarrow \dots$ $^{232}\text{Thorium}$: $^{232}\text{Th} \rightarrow \dots$ $^{241}\text{Neptunium}$: $^{241}\text{Np} \rightarrow \dots$ </div>	<div>"$^{238}\text{U} \rightarrow \dots$"</div> <div>"$^{235}\text{U} \rightarrow \dots$"</div> <div>"$^{232}\text{Th} \rightarrow \dots$"</div> <div>"$^{241}\text{Np} \rightarrow \dots$"</div>
Uran Radium decay chain		
SolReact: nuclear solar reactions (0.1s)	<div>solar reactions</div> <div> $p+p \rightarrow d + e^+ + \nu_e + 4.03\text{ MeV}$ $p+p \rightarrow d + e^+ + \nu_e + 4.03\text{ MeV}$ $p+p \rightarrow d + e^+ + \nu_e + 4.03\text{ MeV}$ $p+p \rightarrow d + e^+ + \nu_e + 4.03\text{ MeV}$ $p+p \rightarrow d + e^+ + \nu_e + 4.03\text{ MeV}$ $p+p \rightarrow d + e^+ + \nu_e + 4.03\text{ MeV}$ $p+p \rightarrow d + e^+ + \nu_e + 4.03\text{ MeV}$ $p+p \rightarrow d + e^+ + \nu_e + 4.03\text{ MeV}$ </div>	<div>"$^{12}\text{C} + p \rightarrow \dots$"</div> <div>"$^{13}\text{C} + p \rightarrow \dots$"</div> <div>"$^{14}\text{C} + p \rightarrow \dots$"</div> <div>"$^{15}\text{C} + p \rightarrow \dots$"</div>
CNO cycle:		
AB→CD: nuclear reaction (0.1s)		
ElxZ: element to atomic number and back	<div>"p"</div> <div>"e"</div> <div>"p+p→e++H2"</div>	<div>"Pb"</div> <div>"82"</div> <div>"96"</div> <div>"Cm"</div>
Pretty: pretty display of reactions with MPC-font and back (0.1s)	<div>"p+p→e++H2"</div> <div>"p+p→e++H2"</div> <div>"p+p→e++H2"</div>	<div>"$^{12}\text{C} + p \rightarrow \dots$"</div> <div>"$^{13}\text{C} + p \rightarrow \dots$"</div> <div>"$^{14}\text{C} + p \rightarrow \dots$"</div> <div>"$^{15}\text{C} + p \rightarrow \dots$"</div>
HelpPTI: help	<div>PTI: PERIODIC TABLE OF ISOTOPES</div> <div> $E = H, He, \dots$ $En = He4, U235$ pte - + - periodic table $isoview$ $E + \{3\}$ "..." data (list) $isoget$ $En + \{3\}$ get data of one isotope, ex: U235 $+SKIP$ $+DEL$ $+DEL$ $+DEL$ $+INS$ </div>	<div>isoprop E pr $+ \{prEn\}$ property of isotopes, $pr =$ n(mass) t(ime) d(ecay) e(nergy) s(pin) $Decay$ $En + decay$ (nodes) $+Decay$ n = mass number dec = string containing $\alpha, \beta^+, \gamma, e, n, p$ $selects$ first(main) decay of a string, together with Decay you can 4 </div>
HelpPTI: help	<div> $+Decay$ En dec + all decays $ex: U235$ "$E(80), \alpha$" $+ \{3\}$ E_k $Mdecay$ En "β^-, α", En + decay gives main decay chain $A \rightarrow B$ A B + $A \rightarrow B + C$ decay $AB \rightarrow C$ A B + $A \rightarrow B + C$ reaction $AB \rightarrow CD$ A B C + $A \rightarrow B + C + D$ reaction A, D = isotope, particle e^+, p^+, n, p, α $+SKIP$ $+DEL$ $+DEL$ $+DEL$ $+INS$ </div>	<div> $Stableiso$ - + ... stable isotopes in choosebox [OK] + stack $NatDecay$ - + $\{3\}$ choose natural decay chain $SolReact$ - + $\{3\}$ choose solar reactions $Elx2$ $E \leftrightarrow 2$ $symbol \leftrightarrow$ atomic number $Isonames$ - + $\{3\}$ element symbols $Isoatnum$ - + $\{3\}$ atomic numbers $Pretty$ "..." + "..." pretty display (requires MPCfont) $+SKIP$ $+DEL$ $+DEL$ $+DEL$ $+INS$ </div>

HelpPTI: help	<p>Isonames Isoatnum are called by programs Isodata etc.</p> <p>Lisoi..5 lists with isotope data: symbol, mass, half-life ("half-life abundance?") decay modes (ratio%), decay energy (MeV), spin parity</p> <p>α = alpha emission (He4) β^- = electron emission (e-) β^+ = positron emission (e+)</p>	<p>e = electron capture p = proton emission n = neutron emission IT = isomeric transition SF = spontaneous fission</p> <p>To edit Lisoi.. = { { } } on HP50 copy Lisoi.. to HOME put it on stack and decompose it with [EVAL]. After edit move the cursor to upperst stack, type [NXT] [+LIST], store it</p>
Isonames: element symbols	+SKIP SKIP+ +DEL DEL+ DEL L INS ▢	+SKIP SKIP+ +DEL DEL+ DEL L INS ▢