```
(*Nuclear Species Experimental Data*)
isotopeName = "Pu-242";
databaseName = "JENDL-5";

atomicNumber = 94;(*Atomic number*)
neutronNumber = 149;(*Compound nucleus neutron number*)

(*End atomic number for fitting data*)
energyPattern = 3;(*Input required*)(*energyPattern=1;
Data at 0.0253eV*)(*energyPattern=2;
Data at 0.0253eV,500keV*)(*energyPattern=3;
Data at 0.0253eV,500keV,14MeV*)(*energyPattern=4;
Data at 500keV*)

(*Average Number of Prompt Neutrons*)
promptNeutrons1 = 2.936;(*0.0253 eV*)
promptNeutrons2 = 3.276;(*500 keV*)
promptNeutrons3 = 4.921;(*14 MeV*)

(*Neutron Separation Energy*)
neutronSeparationEnergy = 5033.6 / 1000;

(*Charge Distribution Experimental Data JENDL-5*)
yieldData0253eV = {{23, 4.5455800 * 10^(-18)}, {24, 5.3554935 * 10^(-14)},
   {25, 1.5269770 * 10^(-11)}, {26, 6.8561111 * 10^(-10)},
   {27, 6.9335229 * 10^(-09)}, {28, 1.1569122 * 10^(-07)}, {29, 1.5706859 * 10^(-06)},
   {30, 2.7853943 * 10^(-05)}, {31, 1.7646125 * 10^(-04)}, {32, 1.1754091 * 10^(-03)},
   {33, 4.2099705 * 10^(-03)}, {34, 1.2647377 * 10^(-02)}, {35, 1.9440376 * 10^(-02)},
   {36, 4.1946415 * 10^(-02)}, {37, 5.9991629 * 10^(-02)}, {38, 1.1008773 * 10^(-01)},
   {39, 1.2277087 * 10^(-01)}, {40, 1.7101989 * 10^(-01)}, {41, 1.4461422 * 10^(-01)},
   {42, 1.5905377 * 10^(-01)}, {43, 9.0313294 * 10^(-02)}, {44, 5.6129259 * 10^(-02)},
   {45, 4.5106272 * 10^(-03)}, {46, 1.2222513 * 10^(-03)}, {47, 7.2596537 * 10^(-04)},
   {48, 6.9823030 * 10^(-04)}, {49, 4.2494667 * 10^(-03)}, {50, 5.2518402 * 10^(-02)},
   {51, 9.0182761 * 10^(-02)}, {52, 1.6990483 * 10^(-01)}, {53, 1.4955913 * 10^(-01)},
   {54, 1.7149048 * 10^(-01)}, {55, 1.1740237 * 10^(-01)}, {56, 1.0404828 * 10^(-01)},
   {57, 5.7861190 * 10^(-02)}, {58, 4.2142233 * 10^(-02)}, {59, 2.0652247 * 10^(-02)},
   {60, 1.2166503 * 10^(-02)}, {61, 4.5915368 * 10^(-03)}, {62, 2.0151028 * 10^(-03)},
   {63, 3.9992221 * 10^(-04)}, {64, 4.9168358 * 10^(-05)}, {65, 2.9402990 * 10^(-06)},
   {66, 1.4930565 * 10^(-07)}, {67, 1.0115916 * 10^(-08)}, {68, 4.1014649 * 10^(-10)},
   {69, 1.2322438 * 10^(-12)}, {70, 2.9748400 * 10^(-16)}, {71, 0}};

yieldData500keV = {{23, 7.130110^(-16)}, {24, 4.3650627 * 10^(-12)},
   {25, 1.1036756 * 10^(-09)}, {26, 3.2365398 * 10^(-08)},
   {27, 1.8847041 * 10^(-07)}, {28, 1.4443746 * 10^(-06)}, {29, 9.6334031 * 10^(-06)},
   {30, 8.4964644 * 10^(-05)}, {31, 4.9760115 * 10^(-04)}, {32, 2.3021639 * 10^(-03)},
   {33, 5.4491200 * 10^(-03)}, {34, 1.2822278 * 10^(-02)}, {35, 1.9998153 * 10^(-02)},
   {36, 4.2626391 * 10^(-02)}, {37, 6.2166798 * 10^(-02)}, {38, 1.0388825 * 10^(-01)},
   {39, 1.1540369 * 10^(-01)}, {40, 1.6346897 * 10^(-01)}, {41, 1.5197710 * 10^(-01)},
   {42, 1.6363350 * 10^(-01)}, {43, 9.0709033 * 10^(-02)}, {44, 5.5800530 * 10^(-02)},
   {45, 5.5501381 * 10^(-03)}, {46, 2.1330988 * 10^(-03)}, {47, 1.6879406 * 10^(-03)},
   {48, 1.9834872 * 10^(-03)}, {49, 6.5872927 * 10^(-03)}, {50, 6.2455693 * 10^(-02)},
   {51, 9.7075817 * 10^(-02)}, {52, 1.5948120 * 10^(-01)}, {53, 1.3819754 * 10^(-01)},
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    {54, 1.6536868 * 10^(-01)}, {55, 1.1734323 * 10^(-01)}, {56, 1.0458272 * 10^(-01)},
    {57, 6.1095250 * 10^(-02)}, {58, 4.3186074 * 10^(-02)}, {59, 2.2039104 * 10^(-02)},
    {60, 1.2868152 * 10^(-02)}, {61, 4.9653940 * 10^(-03)}, {62, 2.0066201 * 10^(-03)},
    {63, 4.6514117 * 10^(-04)}, {64, 7.7669334 * 10^(-05)}, {65, 8.6275108 * 10^(-06)},
    {66, 1.1106910 * 10^(-06)}, {67, 1.5086777 * 10^(-07)}, {68, 7.3628875 * 10^(-09)},
    {69, 3.6374465 * 10^(-11)}, {70, 1.2654800 * 10^(-14)}, {71, 0}};

yieldData14MeV = {{23, 1.6536200 * 10^(-16)}, {24, 1.0022250 * 10^(-12)},
    {25, 1.3832617 * 10^(-10)}, {26, 3.0474757 * 10^(-09)}, {27, 2.1760818 * 10^(-08)},
    {28, 1.4936781 * 10^(-07)}, {29, 3.0197121 * 10^(-06)}, {30, 7.0903787 * 10^(-05)},
    {31, 5.8286709 * 10^(-04)}, {32, 2.3012015 * 10^(-03)}, {33, 7.4306062 * 10^(-03)},
    {34, 1.7756833 * 10^(-02)}, {35, 2.8481133 * 10^(-02)}, {36, 4.3020082 * 10^(-02)},
    {37, 6.2441898 * 10^(-02)}, {38, 8.6705187 * 10^(-02)}, {39, 1.1263815 * 10^(-01)},
    {40, 1.3081381 * 10^(-01)}, {41, 1.3815935 * 10^(-01)}, {42, 1.2648281 * 10^(-01)},
    {43, 8.9873216 * 10^(-02)}, {44, 9.3353501 * 10^(-02)}, {45, 3.4021652 * 10^(-02)},
    {46, 1.2424445 * 10^(-02)}, {47, 1.1771057 * 10^(-02)}, {48, 1.2937123 * 10^(-02)},
    {49, 4.2912156 * 10^(-02)}, {50, 9.7584374 * 10^(-02)}, {51, 9.1665861 * 10^(-02)},
    {52, 1.3370531 * 10^(-01)}, {53, 1.3857570 * 10^(-01)}, {54, 1.2648116 * 10^(-01)},
    {55, 1.1659566 * 10^(-01)}, {56, 8.5522629 * 10^(-02)}, {57, 5.8734064 * 10^(-02)},
    {58, 4.1210353 * 10^(-02)}, {59, 2.7174566 * 10^(-02)}, {60, 1.5987408 * 10^(-02)},
    {61, 8.0714417 * 10^(-03)}, {62, 3.2528438 * 10^(-03)}, {63, 9.9304281 * 10^(-04)},
    {64, 2.1913518 * 10^(-04)}, {65, 3.8428602 * 10^(-05)}, {66, 5.9626760 * 10^(-06)},
    {67, 7.8778713 * 10^(-07)}, {68, 8.2417375 * 10^(-08)}, {69, 2.3941658 * 10^(-09)},
    {70, 9.0660106 * 10^(-12)}, {71, 9.1556000 * 10^(-15)}};

optResult0253eVRe1 = {2.7701249143431795`*^-14,
    {effectiveDistance0253eV[23, 71] -> 0.21736751214553576`,
     effectiveDistance0253eV[24, 70] -> 0.5751303423218105,
     effectiveDistance0253eV[25, 69] -> 0.7642814597056813,
     effectiveDistance0253eV[26, 68] -> 0.8204626701962068,
     effectiveDistance0253eV[27, 67] -> 0.8759280482203315,
     effectiveDistance0253eV[28, 66] -> 0.9466173937828419,
     effectiveDistance0253eV[29, 65] -> 0.9744971343838575,
     effectiveDistance0253eV[30, 64] -> 0.9994785677864628,
     effectiveDistance0253eV[31, 63] -> 1.0243693709263682`,
     effectiveDistance0253eV[32, 62] -> 1.0464199671217003`,
     effectiveDistance0253eV[33, 61] -> 1.068718069854958,
     effectiveDistance0253eV[34, 60] -> 1.088194681826277,
     effectiveDistance0253eV[35, 59] -> 1.1081461642661816`,
     effectiveDistance0253eV[36, 58] -> 1.1247096694289,
     effectiveDistance0253eV[37, 57] -> 1.1414794582849692`,
     effectiveDistance0253eV[38, 56] -> 1.154354302421335,
     effectiveDistance0253eV[39, 55] -> 1.1673869170871836`,
     effectiveDistance0253eV[40, 54] -> 1.1764596294599678`,
     effectiveDistance0253eV[41, 53] -> 1.1859698430313714`,
     effectiveDistance0253eV[42, 52] -> 1.1928397896045122`,
     effectiveDistance0253eV[43, 51] -> 1.2000910638439282`,
     effectiveDistance0253eV[44, 50] -> 1.204270153148005,
     effectiveDistance0253eV[45, 49] -> 1.2094044878879289`,
     effectiveDistance0253eV[46, 48] -> 1.2108815969475677`,
     effectiveDistance0253eV[47, 47] -> 1.2129616708691926`,
     effectiveDistance0253eV[48, 46] -> 1.210674737281353,
     effectiveDistance0253eV[49, 45] -> 1.209382457913768,
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    effectiveDistance0253eV[50, 44] -> 1.204245717767933,
    effectiveDistance0253eV[51, 43] -> 1.2000905334639296`,
    effectiveDistance0253eV[52, 42] -> 1.1928638468966148`,
    effectiveDistance0253eV[53, 41] -> 1.1859820504078564`,
    effectiveDistance0253eV[54, 40] -> 1.1764606200803018`,
    effectiveDistance0253eV[55, 39] -> 1.1673708791830921`,
    effectiveDistance0253eV[56, 38] -> 1.1543342761431366`,
    effectiveDistance0253eV[57, 37] -> 1.141466739165032,
    effectiveDistance0253eV[58, 36] -> 1.1247112840326314`,
    effectiveDistance0253eV[59, 35] -> 1.1081668566514886`,
    effectiveDistance0253eV[60, 34] -> 1.088181655620391,
    effectiveDistance0253eV[61, 33] -> 1.0687467592737185`,
    effectiveDistance0253eV[62, 32] -> 1.0465946452217088`,
    effectiveDistance0253eV[63, 31] -> 1.0246295349104038`,
    effectiveDistance0253eV[64, 30] -> 0.9996550354449615,
    effectiveDistance0253eV[65, 29] -> 0.974687408559717,
    effectiveDistance0253eV[66, 28] -> 0.946692629743654,
    effectiveDistance0253eV[67, 27] -> 0.8759280482224785,
    effectiveDistance0253eV[68, 26] -> 0.8204626701981386,
    effectiveDistance0253eV[69, 25] -> 0.764281459707933,
    effectiveDistance0253eV[70, 24] -> 0.5751303423341846,
    effectiveDistance0253eV[71, 23] -> 0.2173675121436759}};

optResult500keVRe1 =
  {6.796944624210163*^-13, {effectiveDistance500keV[23, 71] -> 0.28206309587977607`,
    effectiveDistance500keV[24, 70] -> 0.6095646844250329,
    effectiveDistance500keV[25, 69] -> 0.7793461007436504,
    effectiveDistance500keV[26, 68] -> 0.8271649201586104,
    effectiveDistance500keV[27, 67] -> 0.8752685004468999,
    effectiveDistance500keV[28, 66] -> 0.9333807588261441,
    effectiveDistance500keV[29, 65] -> 0.9617949749756001,
    effectiveDistance500keV[30, 64] -> 0.9873699299917958,
    effectiveDistance500keV[31, 63] -> 1.0129915252151627`,
    effectiveDistance500keV[32, 62] -> 1.035707069173646,
    effectiveDistance500keV[33, 61] -> 1.0585730298903324`,
    effectiveDistance500keV[34, 60] -> 1.078661563111003,
    effectiveDistance500keV[35, 59] -> 1.0992343759271364`,
    effectiveDistance500keV[36, 58] -> 1.1164341849910886`,
    effectiveDistance500keV[37, 57] -> 1.1337746677141767`,
    effectiveDistance500keV[38, 56] -> 1.1471765362104551`,
    effectiveDistance500keV[39, 55] -> 1.1606860310924954`,
    effectiveDistance500keV[40, 54] -> 1.1702580166734808`,
    effectiveDistance500keV[41, 53] -> 1.1802001215146316`,
    effectiveDistance500keV[42, 52] -> 1.1874013704893716`,
    effectiveDistance500keV[43, 51] -> 1.1948793708974481`,
    effectiveDistance500keV[44, 50] -> 1.1992384152009112`,
    effectiveDistance500keV[45, 49] -> 1.204495356239162,
    effectiveDistance500keV[46, 48] -> 1.206168551935241,
    effectiveDistance500keV[47, 47] -> 1.2083569238582677`,
    effectiveDistance500keV[48, 46] -> 1.2061392416867602`,
    effectiveDistance500keV[49, 45] -> 1.204564363160632,
    effectiveDistance500keV[50, 44] -> 1.1992835571706635`,
    effectiveDistance500keV[51, 43] -> 1.1949064802668816`,
    effectiveDistance500keV[52, 42] -> 1.1873911643452129`,
    effectiveDistance500keV[53, 41] -> 1.1801625547388108`,
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    effectiveDistance500keV[54, 40] -> 1.1702625476132305`,
    effectiveDistance500keV[55, 39] -> 1.160692528037559,
    effectiveDistance500keV[56, 38] -> 1.1471791036893961`,
    effectiveDistance500keV[57, 37] -> 1.133768034521982,
    effectiveDistance500keV[58, 36] -> 1.116439083496591,
    effectiveDistance500keV[59, 35] -> 1.0992703465367883`,
    effectiveDistance500keV[60, 34] -> 1.0786628594382281`,
    effectiveDistance500keV[61, 33] -> 1.0585398764448566`,
    effectiveDistance500keV[62, 32] -> 1.0356591307073488`,
    effectiveDistance500keV[63, 31] -> 1.0129684713120695`,
    effectiveDistance500keV[64, 30] -> 0.9873400271773732,
    effectiveDistance500keV[65, 29] -> 0.9617591452183919,
    effectiveDistance500keV[66, 28] -> 0.9332979570302746,
    effectiveDistance500keV[67, 27] -> 0.8752685004470893,
    effectiveDistance500keV[68, 26] -> 0.8271649201588684,
    effectiveDistance500keV[69, 25] -> 0.7793461007434547,
    effectiveDistance500keV[70, 24] -> 0.6095646844323738,
    effectiveDistance500keV[71, 23] -> 0.28206309587652056`}};

optResult14MeVRe1 =
  {4.179135857855523*^-12, {effectiveDistance14MeV[23, 71] -> 0.030289358735728432`,
    effectiveDistance14MeV[24, 70] -> 0.3552732851122009,
    effectiveDistance14MeV[25, 69] -> 0.69772697588022,
    effectiveDistance14MeV[26, 68] -> 0.8584761340787547,
    effectiveDistance14MeV[27, 67] -> 0.9259282254002342,
    effectiveDistance14MeV[28, 66] -> 0.959645251532719,
    effectiveDistance14MeV[29, 65] -> 0.9906666766785575,
    effectiveDistance14MeV[30, 64] -> 1.019100004986457,
    effectiveDistance14MeV[31, 63] -> 1.0465657443867042`,
    effectiveDistance14MeV[32, 62] -> 1.0702513478596951`,
    effectiveDistance14MeV[33, 61] -> 1.0941070358937024`,
    effectiveDistance14MeV[34, 60] -> 1.1146036590783552`,
    effectiveDistance14MeV[35, 59] -> 1.1351935355923304`,
    effectiveDistance14MeV[36, 58] -> 1.1521167864996924`,
    effectiveDistance14MeV[37, 57] -> 1.1694348416974603`,
    effectiveDistance14MeV[38, 56] -> 1.182737724510747,
    effectiveDistance14MeV[39, 55] -> 1.1965765463389328`,
    effectiveDistance14MeV[40, 54] -> 1.2064582333263674`,
    effectiveDistance14MeV[41, 53] -> 1.2169007590823444`,
    effectiveDistance14MeV[42, 52] -> 1.2238380977434213`,
    effectiveDistance14MeV[43, 51] -> 1.2310513577783737`,
    effectiveDistance14MeV[44, 50] -> 1.235355808255798,
    effectiveDistance14MeV[45, 49] -> 1.2398861847203597`,
    effectiveDistance14MeV[46, 48] -> 1.2403445614863937`,
    effectiveDistance14MeV[47, 47] -> 1.2424810671291213`,
    effectiveDistance14MeV[48, 46] -> 1.2404038459713684`,
    effectiveDistance14MeV[49, 45] -> 1.2402270873119403`,
    effectiveDistance14MeV[50, 44] -> 1.2354206251933297`,
    effectiveDistance14MeV[51, 43] -> 1.2310801748245013`,
    effectiveDistance14MeV[52, 42] -> 1.223918675643138,
    effectiveDistance14MeV[53, 41] -> 1.2169051084259868`,
    effectiveDistance14MeV[54, 40] -> 1.2064099500614813`,
    effectiveDistance14MeV[55, 39] -> 1.1966257560764493`,
    effectiveDistance14MeV[56, 38] -> 1.1827183761158466`,
    effectiveDistance14MeV[57, 37] -> 1.1693493839571247`,
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     effectiveDistance14MeV[58, 36] -> 1.1520576721602023`,
     effectiveDistance14MeV[59, 35] -> 1.1351297762728338`,
     effectiveDistance14MeV[60, 34] -> 1.1144637394534513`,
     effectiveDistance14MeV[61, 33] -> 1.0942154556679964`,
     effectiveDistance14MeV[62, 32] -> 1.0706950739164691`,
     effectiveDistance14MeV[63, 31] -> 1.04723471914115,
     effectiveDistance14MeV[64, 30] -> 1.02047910289981,
     effectiveDistance14MeV[65, 29] -> 0.9936918092042433,
     effectiveDistance14MeV[66, 28] -> 0.9638896731273667,
     effectiveDistance14MeV[67, 27] -> 0.9259282254002311,
     effectiveDistance14MeV[68, 26] -> 0.8584761340789723,
     effectiveDistance14MeV[69, 25] -> 0.6977269758801012,
     effectiveDistance14MeV[70, 24] -> 0.3552732851131936,
     effectiveDistance14MeV[71, 23] -> 0.03028935873586143}};

optResult0253eVRe2 = {1.1359414405119654`*^-17,
    {fermiEnergy0253eV[23, 71] -> 1., fermiEnergy0253eV[24, 70] -> 1.,
     fermiEnergy0253eV[25, 69] -> 1.0000000000000082`,
     fermiEnergy0253eV[26, 68] -> 1.0000000000519502`,
     fermiEnergy0253eV[27, 67] -> 1.0000000006632273`, fermiEnergy0253eV[28, 66] ->
      -1.0957719562121728`, fermiEnergy0253eV[29, 65] -> 0.9664154469683932,
     fermiEnergy0253eV[30, 64] -> -1.064245009587493, fermiEnergy0253eV[31, 63] ->
      0.7253936119334133, fermiEnergy0253eV[32, 62] -> -1.1626224517509713`,
     fermiEnergy0253eV[33, 61] -> 1.4065388756259636`,
     fermiEnergy0253eV[34, 60] -> 0.498063337173177,
     fermiEnergy0253eV[35, 59] -> 4.344043868290865,
     fermiEnergy0253eV[36, 58] -> 3.4794897273820222`,
     fermiEnergy0253eV[37, 57] -> 6.560579098545601,
     fermiEnergy0253eV[38, 56] -> 3.978245969634099,
     fermiEnergy0253eV[39, 55] -> 5.16262051964216,
     fermiEnergy0253eV[40, 54] -> 0.7374406571993741,
     fermiEnergy0253eV[41, 53] -> 0.6429493313652462,
     fermiEnergy0253eV[42, 52] -> -2.035856118749621,
     fermiEnergy0253eV[43, 51] -> -0.6193107125582373,
     fermiEnergy0253eV[44, 50] -> -2.720610211504641,
     fermiEnergy0253eV[45, 49] -> 0.4623418887199196,
     fermiEnergy0253eV[46, 48] -> -1.118289095817305,
     fermiEnergy0253eV[47, 47] -> 1.7889415753669715`,
     fermiEnergy0253eV[48, 46] -> -1.5797140328217774`,
     fermiEnergy0253eV[49, 45] -> 0.38891038621661733`,
     fermiEnergy0253eV[50, 44] -> -2.8125458675888972`,
     fermiEnergy0253eV[51, 43] -> -0.6721596303131075,
     fermiEnergy0253eV[52, 42] -> -2.0477400859630466`,
     fermiEnergy0253eV[53, 41] -> 0.5913702967385909,
     fermiEnergy0253eV[54, 40] -> 0.646868713999449,
     fermiEnergy0253eV[55, 39] -> 5.018950522202359,
     fermiEnergy0253eV[56, 38] -> 3.8098066846377416`,
     fermiEnergy0253eV[57, 37] -> 6.392840518478058,
     fermiEnergy0253eV[58, 36] -> 3.328780653379294,
     fermiEnergy0253eV[59, 35] -> 4.222281215463519,
     fermiEnergy0253eV[60, 34] -> 0.2755521583792632,
     fermiEnergy0253eV[61, 33] -> 1.2696605978815223`,
     fermiEnergy0253eV[62, 32] -> -0.9374732606083704,
     fermiEnergy0253eV[63, 31] -> 1.1695479341870412`,
     fermiEnergy0253eV[64, 30] -> -0.8530872977718985,
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     fermiEnergy0253eV[65, 29] -> 1.2066569112425694`,
     fermiEnergy0253eV[66, 28] -> -1.2047328277437481`,
     fermiEnergy0253eV[67, 27] -> 1.0000000010007313`,
     fermiEnergy0253eV[68, 26] -> 1.0000000000811573`,
     fermiEnergy0253eV[69, 25] -> 1.0000000000000129`, fermiEnergy0253eV[70, 24] ->
      0.9999999999999999, fermiEnergy0253eV[71, 23] -> 1.}};

optResult500keVRe2 = {6.766253955092592*^-13,
   {fermiEnergy500keV[23, 71] -> 1., fermiEnergy500keV[24, 70] -> 1.,
    fermiEnergy500keV[25, 69] -> 1.0000000000000002`,
    fermiEnergy500keV[26, 68] -> 1.0000000000038116`,
    fermiEnergy500keV[27, 67] -> 1.000000000148249, fermiEnergy500keV[28, 66] ->
     0.9502610433466703, fermiEnergy500keV[29, 65] -> 1.8506241043304998`,
    fermiEnergy500keV[30, 64] -> -1.052125723231426, fermiEnergy500keV[31, 63] ->
     0.528272851373482, fermiEnergy500keV[32, 62] -> -1.679191309048948,
    fermiEnergy500keV[33, 61] -> 0.5552720667176572,
    fermiEnergy500keV[34, 60] -> -0.5015597889353469,
    fermiEnergy500keV[35, 59] -> 3.427380268871847,
    fermiEnergy500keV[36, 58] -> 2.7195804740869507`,
    fermiEnergy500keV[37, 57] -> 5.969138290030119,
    fermiEnergy500keV[38, 56] -> 3.4871857797788137`,
    fermiEnergy500keV[39, 55] -> 4.8160397967261055`,
    fermiEnergy500keV[40, 54] -> 0.6338395213500198,
    fermiEnergy500keV[41, 53] -> 0.7867816543079421,
    fermiEnergy500keV[42, 52] -> -1.7853024514298623`,
    fermiEnergy500keV[43, 51] -> -0.3460301628578421,
    fermiEnergy500keV[44, 50] -> -2.447781235853225,
    fermiEnergy500keV[45, 49] -> 0.7631566846447392,
    fermiEnergy500keV[46, 48] -> -0.5584142323806088,
    fermiEnergy500keV[47, 47] -> 2.5604967368836054`,
    fermiEnergy500keV[48, 46] -> -0.6192382783425461,
    fermiEnergy500keV[49, 45] -> 0.9206588884035901,
    fermiEnergy500keV[50, 44] -> -2.3385806692620075`,
    fermiEnergy500keV[51, 43] -> -0.2729746789833117,
    fermiEnergy500keV[52, 42] -> -1.7915783041534903`,
    fermiEnergy500keV[53, 41] -> 0.7223525240385681,
    fermiEnergy500keV[54, 40] -> 0.6676793595875805,
    fermiEnergy500keV[55, 39] -> 4.858190339136085,
    fermiEnergy500keV[56, 38] -> 3.5242719015292514`,
    fermiEnergy500keV[57, 37] -> 5.98860173549096,
    fermiEnergy500keV[58, 36] -> 2.770762556924986,
    fermiEnergy500keV[59, 35] -> 3.5597323670666747`,
    fermiEnergy500keV[60, 34] -> -0.4497102502880255,
    fermiEnergy500keV[61, 33] -> 0.5231479569313441,
    fermiEnergy500keV[62, 32] -> -1.747798160764942,
    fermiEnergy500keV[63, 31] -> 0.5300361830059744,
    fermiEnergy500keV[64, 30] -> -1.0656057990021877`,
    fermiEnergy500keV[65, 29] -> 1.823786382868708,
    fermiEnergy500keV[66, 28] -> 0.7833002761991213,
    fermiEnergy500keV[67, 27] -> 1.0000000001345288`,
    fermiEnergy500keV[68, 26] -> 1.0000000000034297`,
    fermiEnergy500keV[69, 25] -> 1.0000000000000002`,
    fermiEnergy500keV[70, 24] -> 1., fermiEnergy500keV[71, 23] -> 1.}};

optResult14MeVRe2 =
```

```
{5.454417934047079*^-12, {fermiEnergy14MeV[23, 71] -> 0.9999999999950006,
  fermiEnergy14MeV[24, 70] -> 0.9999999995268906,
  fermiEnergy14MeV[25, 69] -> 0.9999999921434988,
  fermiEnergy14MeV[26, 68] -> 0.9999997466064595, fermiEnergy14MeV[27, 67] ->
   0.9999984832350609, fermiEnergy14MeV[28, 66] -> -11.852344393998386`,
  fermiEnergy14MeV[29, 65] -> -4.864113540237256, fermiEnergy14MeV[30, 64] ->
   -1.1842108544690357`, fermiEnergy14MeV[31, 63] -> 3.7322340278926545`,
  fermiEnergy14MeV[32, 62] -> 2.7850216035062423`, fermiEnergy14MeV[33, 61] ->
   6.059932061637643, fermiEnergy14MeV[34, 60] -> 4.895730031586869,
  fermiEnergy14MeV[35, 59] -> 7.583871938640225, fermiEnergy14MeV[36, 58] ->
   5.376059994516278, fermiEnergy14MeV[37, 57] -> 7.577125076769544,
  fermiEnergy14MeV[38, 56] -> 4.3185006034682605`,
  fermiEnergy14MeV[39, 55] -> 5.659213628582377,
  fermiEnergy14MeV[40, 54] -> 1.8334556625416552`,
  fermiEnergy14MeV[41, 53] -> 2.5499323568430396`,
  fermiEnergy14MeV[42, 52] -> -0.8478583674795442,
  fermiEnergy14MeV[43, 51] -> -0.39573652763686024`,
  fermiEnergy14MeV[44, 50] -> -2.7729278290770973`,
  fermiEnergy14MeV[45, 49] -> -1.4677821350817162`,
  fermiEnergy14MeV[46, 48] -> -5.381377413195693,
  fermiEnergy14MeV[47, 47] -> -2.6387380848089523`,
  fermiEnergy14MeV[48, 46] -> -5.404290411277846,
  fermiEnergy14MeV[49, 45] -> -1.0554235661317466`,
  fermiEnergy14MeV[50, 44] -> -3.077455252125842,
  fermiEnergy14MeV[51, 43] -> -0.9244016097748985,
  fermiEnergy14MeV[52, 42] -> -1.4199057305090768`,
  fermiEnergy14MeV[53, 41] -> 1.661694468829766,
  fermiEnergy14MeV[54, 40] -> 0.6721022382019665,
  fermiEnergy14MeV[55, 39] -> 4.540972656758559,
  fermiEnergy14MeV[56, 38] -> 2.8789797025707347`,
  fermiEnergy14MeV[57, 37] -> 5.80979620475206,
  fermiEnergy14MeV[58, 36] -> 3.4752482874217554`,
  fermiEnergy14MeV[59, 35] -> 5.470052243956757,
  fermiEnergy14MeV[60, 34] -> 2.3862591126547623`,
  fermiEnergy14MeV[61, 33] -> 3.917915419492561,
  fermiEnergy14MeV[62, 32] -> 1.2444937547562587`,
  fermiEnergy14MeV[63, 31] -> 2.5406988045780596`,
  fermiEnergy14MeV[64, 30] -> -0.7094531482550746,
  fermiEnergy14MeV[65, 29] -> -0.02389722240857605,
  fermiEnergy14MeV[66, 28] -> -3.4829677366696714`,
  fermiEnergy14MeV[67, 27] -> 0.9999946523311932,
  fermiEnergy14MeV[68, 26] -> 0.9999990029982568,
  fermiEnergy14MeV[69, 25] -> 0.999999965108591,
  fermiEnergy14MeV[70, 24] -> 0.9999999975956648,
  fermiEnergy14MeV[71, 23] -> 0.9999999999704358}};
```