```
(*Nuclear Species Experimental Data*)
isotopeName = "U-233";
databaseName = "JENDL-5";


atomicNumber = 92;(*Atomic number*)
neutronNumber = 142;(*Compound nucleus neutron number*)
(*Calculation Data Range*)


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 = 2.497;(*0.0253 eV*)
promptNeutrons2 = 2.933;(*500 keV*)
promptNeutrons3 = 4.521;(*14 MeV*)


(*Neutron Separation Energy*)
neutronSeparationEnergy = 6845.5/1000;


(*Charge Distribution Experimental Data JENDL-5*)
yieldData0253eV = {{23, 1.9395800*10^(-18)}, {24, 4.7149180*10^(-14)},
    {25, 1.9564253*10^(-11)}, {26, 2.4292640*10^(-09)},
    {27, 5.8120002*10^(-08)}, {28, 2.1277073*10^(-06)}, {29, 2.1238754*10^(-05)},
    {30, 2.1356347*10^(-04)}, {31, 1.3714399*10^(-03)}, {32, 5.7203651*10^(-03)},
    {33, 1.2635055*10^(-02)}, {34, 4.5523769*10^(-02)}, {35, 6.1180197*10^(-02)},
    {36, 1.7881349*10^(-01)}, {37, 1.2223762*10^(-01)}, {38, 1.9893069*10^(-01)},
    {39, 1.2252070*10^(-01)}, {40, 1.6079703*10^(-01)}, {41, 5.1488355*10^(-02)},
    {42, 3.3556081*10^(-02)}, {43, 3.4037124*10^(-03)}, {44, 7.7093729*10^(-04)},
    {45, 2.7766192*10^(-04)}, {46, 4.0452957*10^(-04)}, {47, 3.0684672*10^(-04)},
    {48, 6.4484326*10^(-04)}, {49, 4.1886236*10^(-03)}, {50, 3.9938902*10^(-02)},
    {51, 5.9054768*10^(-02)}, {52, 1.5496140*10^(-01)}, {53, 1.0933581*10^(-01)},
    {54, 1.8970848*10^(-01)}, {55, 1.2760284*10^(-01)}, {56, 1.8015937*10^(-01)},
    {57, 7.5439083*10^(-02)}, {58, 4.2046507*10^(-02)}, {59, 1.1311828*10^(-02)},
    {60, 4.6284361*10^(-03)}, {61, 6.5189816*10^(-04)}, {62, 1.3860441*10^(-04)},
    {63, 1.2154116*10^(-05)}, {64, 9.4474190*10^(-07)}, {65, 3.1218573*10^(-08)},
    {66, 1.7602408*10^(-09)}, {67, 4.7831576*10^(-11)}, {68, 1.9634419*10^(-12)},
    {69, 1.6750416*10^(-14)}, {70, 4.4242209*10^(-17)}, {71, 0}};


yieldData500keV = {{23, 1.3304500*10^(-18)}, {24, 4.0734560*10^(-14)},
    {25, 2.0682375*10^(-11)}, {26, 2.9497964*10^(-09)}, {27, 6.8446039*10^(-08)},
    {28, 2.3096487*10^(-06)}, {29, 2.4492120*10^(-05)}, {30, 2.3032832*10^(-04)},
    {31, 8.6591931*10^(-04)}, {32, 4.8184891*10^(-03)}, {33, 1.2464802*10^(-02)},
    {34, 4.6941559*10^(-02)}, {35, 6.4163271*10^(-02)}, {36, 1.6251272*10^(-01)},
    {37, 1.2148586*10^(-01)}, {38, 1.9606439*10^(-01)}, {39, 1.2044272*10^(-01)},
    {40, 1.4176988*10^(-01)}, {41, 6.9939717*10^(-02)}, {42, 4.9368408*10^(-02)},
    {43, 4.8283706*10^(-03)}, {44, 1.8210398*10^(-03)}, {45, 1.2080202*10^(-03)},
    {46, 1.6450812*10^(-03)}, {47, 1.3005316*10^(-03)}, {48, 1.9935849*10^(-03)},
    {49, 4.0546610*10^(-03)}, {50, 4.7388849*10^(-02)}, {51, 6.6327727*10^(-02)},
    {52, 1.5008923*10^(-01)}, {53, 1.2500967*10^(-01)}, {54, 1.8399314*10^(-01)},
    {55, 1.2964181*10^(-01)}, {56, 1.5455756*10^(-01)}, {57, 7.2120142*10^(-02)},
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   {58, 4.4167589 * 10^ (-02)}, {59, 1.2520996 * 10^ (-02)}, {60, 5.0047611 * 10^ (-03)},
   {61, 9.4462787 * 10^ (-04)}, {62, 2.5349105 * 10^ (-04)}, {63, 3.2112581 * 10^ (-05)},
   {64, 2.0574505 * 10^ (-06)}, {65, 8.6122205 * 10^ (-08)}, {66, 5.8917332 * 10^ (-09)},
   {67, 2.1584943 * 10^ (-10)}, {68, 8.4449408 * 10^ (-12)}, {69, 1.7282211 * 10^ (-13)},
   {70, 7.8074632 * 10^ (-16)}, {71, 9.3977000 * 10^ (-20)}};

yieldData14MeV = {{23, 2.4071900 * 10^ (-13)}, {24, 1.1402617 * 10^ (-09)},
   {25, 1.9695899 * 10^ (-07)}, {26, 5.1037107 * 10^ (-06)}, {27, 3.0212411 * 10^ (-05)},
   {28, 1.1456633 * 10^ (-04)}, {29, 3.7307472 * 10^ (-04)}, {30, 1.1082888 * 10^ (-03)},
   {31, 3.1146315 * 10^ (-03)}, {32, 7.8674530 * 10^ (-03)}, {33, 2.0243504 * 10^ (-02)},
   {34, 4.1349462 * 10^ (-02)}, {35, 6.7745881 * 10^ (-02)}, {36, 1.0833892 * 10^ (-01)},
   {37, 1.2417831 * 10^ (-01)}, {38, 1.3155392 * 10^ (-01)}, {39, 1.2152981 * 10^ (-01)},
   {40, 9.8620785 * 10^ (-02)}, {41, 7.8493301 * 10^ (-02)}, {42, 5.9253394 * 10^ (-02)},
   {43, 4.1868430 * 10^ (-02)}, {44, 3.8388374 * 10^ (-02)}, {45, 3.6302172 * 10^ (-02)},
   {46, 3.5285276 * 10^ (-02)}, {47, 3.5068330 * 10^ (-02)}, {48, 3.5105681 * 10^ (-02)},
   {49, 4.7849279 * 10^ (-02)}, {50, 6.6816907 * 10^ (-02)}, {51, 7.7893742 * 10^ (-02)},
   {52, 9.7530614 * 10^ (-02)}, {53, 1.1819071 * 10^ (-01)}, {54, 1.2811692 * 10^ (-01)},
   {55, 1.3697081 * 10^ (-01)}, {56, 1.0426530 * 10^ (-01)}, {57, 7.1574423 * 10^ (-02)},
   {58, 3.6379958 * 10^ (-02)}, {59, 1.7349547 * 10^ (-02)}, {60, 7.0241157 * 10^ (-03)},
   {61, 2.7204453 * 10^ (-03)}, {62, 9.2641255 * 10^ (-04)}, {63, 3.0773823 * 10^ (-04)},
   {64, 1.0066067 * 10^ (-04)}, {65, 3.1040784 * 10^ (-05)}, {66, 9.2817538 * 10^ (-06)},
   {67, 2.4026634 * 10^ (-06)}, {68, 6.1153115 * 10^ (-07)}, {69, 8.1743673 * 10^ (-08)},
   {70, 2.6024813 * 10^ (-09)}, {71, 1.0647540 * 10^ (-11)}};

optResult0253eVRe1 = { 3.5337884974321467` *^-14,
   {effectiveDistance0253eV[23, 69] -> 0.17373508181707756`,
    effectiveDistance0253eV[24, 68] -> 0.4403523063392093,
    effectiveDistance0253eV[25, 67] -> 0.7330432453816984,
    effectiveDistance0253eV[26, 66] -> 0.8724290984612452,
    effectiveDistance0253eV[27, 65] -> 0.9178586839990969,
    effectiveDistance0253eV[28, 64] -> 0.9583226375696754,
    effectiveDistance0253eV[29, 63] -> 0.9880924223186885,
    effectiveDistance0253eV[30, 62] -> 1.0146847854601482`,
    effectiveDistance0253eV[31, 61] -> 1.0412622127489273`,
    effectiveDistance0253eV[32, 60] -> 1.0644081243292325`,
    effectiveDistance0253eV[33, 59] -> 1.0877986885671591`,
    effectiveDistance0253eV[34, 58] -> 1.1077673493859317`,
    effectiveDistance0253eV[35, 57] -> 1.1277862024481804`,
    effectiveDistance0253eV[36, 56] -> 1.1443314948009258`,
    effectiveDistance0253eV[37, 55] -> 1.1607285806951808`,
    effectiveDistance0253eV[38, 54] -> 1.1733740429086001`,
    effectiveDistance0253eV[39, 53] -> 1.186393691951176,
    effectiveDistance0253eV[40, 52] -> 1.1963615013254085`,
    effectiveDistance0253eV[41, 51] -> 1.2065401454524367`,
    effectiveDistance0253eV[42, 50] -> 1.213119468136353,
    effectiveDistance0253eV[43, 49] -> 1.2203032169697043`,
    effectiveDistance0253eV[44, 48] -> 1.2234664448499293`,
    effectiveDistance0253eV[45, 47] -> 1.2272528647195073`,
    effectiveDistance0253eV[46, 46] -> 1.2272154676475089`,
    effectiveDistance0253eV[47, 45] -> 1.227306728810762,
    effectiveDistance0253eV[48, 44] -> 1.2233705907413988`,
    effectiveDistance0253eV[49, 43] -> 1.2204144230339067`,
    effectiveDistance0253eV[50, 42] -> 1.2132121537782425`,
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      effectiveDistance0253eV[51, 41] -> 1.206612800741415,
      effectiveDistance0253eV[52, 40] -> 1.1963420899762007`,
      effectiveDistance0253eV[53, 39] -> 1.1863344445244623`,
      effectiveDistance0253eV[54, 38] -> 1.1733495737798196`,
      effectiveDistance0253eV[55, 37] -> 1.1607505221360432`,
      effectiveDistance0253eV[56, 36] -> 1.1443352702339737`,
      effectiveDistance0253eV[57, 35] -> 1.1278902874026682`,
      effectiveDistance0253eV[58, 34] -> 1.1077285985281313`,
      effectiveDistance0253eV[59, 33] -> 1.087745660528314,
      effectiveDistance0253eV[60, 32] -> 1.0643088587923888`,
      effectiveDistance0253eV[61, 31] -> 1.0409210391168573`,
      effectiveDistance0253eV[62, 30] -> 1.0144917103325275`,
      effectiveDistance0253eV[63, 29] -> 0.987849616175906,
      effectiveDistance0253eV[64, 28] -> 0.9579806750274361,
      effectiveDistance0253eV[65, 27] -> 0.9178586840001297,
      effectiveDistance0253eV[66, 26] -> 0.8724290984619502,
      effectiveDistance0253eV[67, 25] -> 0.7330432453831617,
      effectiveDistance0253eV[68, 24] -> 0.44035230634223566`,
      effectiveDistance0253eV[69, 23] -> 0.1737350818290305`}};

  optResult500keVRe1 =
    { 2.70104353149652*^-14, {effectiveDistance500keV[23, 69] -> 0.2640915749561521,
      effectiveDistance500keV[24, 68] -> 0.6007633691449077,
      effectiveDistance500keV[25, 67] -> 0.7809268904582523,
      effectiveDistance500keV[26, 66] -> 0.836569042399395,
      effectiveDistance500keV[27, 65] -> 0.8910594824427167,
      effectiveDistance500keV[28, 64] -> 0.9540131366602417,
      effectiveDistance500keV[29, 63] -> 0.9819155182861528,
      effectiveDistance500keV[30, 62] -> 1.0067184528601176`,
      effectiveDistance500keV[31, 61] -> 1.031167098315724,
      effectiveDistance500keV[32, 60] -> 1.0527689019886652`,
      effectiveDistance500keV[33, 59] -> 1.0742857510378716`,
      effectiveDistance500keV[34, 58] -> 1.0925824651722422`,
      effectiveDistance500keV[35, 57] -> 1.1108787087211145`,
      effectiveDistance500keV[36, 56] -> 1.125942393818332,
      effectiveDistance500keV[37, 55] -> 1.1409496128533636`,
      effectiveDistance500keV[38, 54] -> 1.1526043922504263`,
      effectiveDistance500keV[39, 53] -> 1.1645373373385632`,
      effectiveDistance500keV[40, 52] -> 1.173717529038423,
      effectiveDistance500keV[41, 51] -> 1.183414781625911,
      effectiveDistance500keV[42, 50] -> 1.1895938948687386`,
      effectiveDistance500keV[43, 49] -> 1.1959947720934359`,
      effectiveDistance500keV[44, 48] -> 1.1990466870222631`,
      effectiveDistance500keV[45, 47] -> 1.2027295031219616`,
      effectiveDistance500keV[46, 46] -> 1.2027520529472875`,
      effectiveDistance500keV[47, 45] -> 1.2027704877670777`,
      effectiveDistance500keV[48, 44] -> 1.1990967669332078`,
      effectiveDistance500keV[49, 43] -> 1.1958983198778481`,
      effectiveDistance500keV[50, 42] -> 1.1895714212685569`,
      effectiveDistance500keV[51, 41] -> 1.1833857777995307`,
      effectiveDistance500keV[52, 40] -> 1.1737484565001473`,
      effectiveDistance500keV[53, 39] -> 1.1645573949660613`,
      effectiveDistance500keV[54, 38] -> 1.1525704768002527`,
      effectiveDistance500keV[55, 37] -> 1.1409840239890376`,
      effectiveDistance500keV[56, 36] -> 1.1259161433043834`,
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            effectiveDistance500keV[57, 35] -> 1.1109391735641638`,
            effectiveDistance500keV[58, 34] -> 1.0925514569675823`,
            effectiveDistance500keV[59, 33] -> 1.0742880076447279`,
            effectiveDistance500keV[60, 32] -> 1.0527875629156798`,
            effectiveDistance500keV[61, 31] -> 1.031209112046962,
            effectiveDistance500keV[62, 30] -> 1.0067636667216138`,
            effectiveDistance500keV[63, 29] -> 0.9820404393935201,
            effectiveDistance500keV[64, 28] -> 0.9539613309818378,
            effectiveDistance500keV[65, 27] -> 0.891059482444322,
            effectiveDistance500keV[66, 26] -> 0.8365690423998062,
            effectiveDistance500keV[67, 25] -> 0.7809268904595171,
            effectiveDistance500keV[68, 24] -> 0.6007633691495124,
            effectiveDistance500keV[69, 23] -> 0.2640915749678143}};

    optResult14MeVRe1 =
      { 0.008646043770579495, {effectiveDistance14MeV[23, 69] -> 0.0013119632410419696`,
        effectiveDistance14MeV[24, 68] -> 0.358764258623534,
        effectiveDistance14MeV[25, 67] -> 0.7123886309403626,
        effectiveDistance14MeV[26, 66] -> 0.8746408951360796,
        effectiveDistance14MeV[27, 65] -> 0.9687701409650542,
        effectiveDistance14MeV[28, 64] -> 0.9873755434676764,
        effectiveDistance14MeV[29, 63] -> 1.015342548408466,
        effectiveDistance14MeV[30, 62] -> 1.0401079888575153`,
        effectiveDistance14MeV[31, 61] -> 1.0649345873529363`,
        effectiveDistance14MeV[32, 60] -> 1.0862698821636618`,
        effectiveDistance14MeV[33, 59] -> 1.108123827507036,
        effectiveDistance14MeV[34, 58] -> 1.1260402160382839`,
        effectiveDistance14MeV[35, 57] -> 1.1443227550734505`,
        effectiveDistance14MeV[36, 56] -> 1.159012751859095,
        effectiveDistance14MeV[37, 55] -> 1.1740823311942388`,
        effectiveDistance14MeV[38, 54] -> 1.18538729592647,
        effectiveDistance14MeV[39, 53] -> 1.1974253774624188`,
        effectiveDistance14MeV[40, 52] -> 1.2059528559074026`,
        effectiveDistance14MeV[41, 51] -> 1.2153794292581044`,
        effectiveDistance14MeV[42, 50] -> 1.2209636792698093`,
        effectiveDistance14MeV[43, 49] -> 1.2279802623264677`,
        effectiveDistance14MeV[44, 48] -> 1.2311399486845962`,
        effectiveDistance14MeV[45, 47] -> 1.234928901335346,
        effectiveDistance14MeV[46, 46] -> 1.2346327473189318`,
        effectiveDistance14MeV[47, 45] -> 1.234871913867613,
        effectiveDistance14MeV[48, 44] -> 1.2309932653499664`,
        effectiveDistance14MeV[49, 43] -> 1.2281986803590554`,
        effectiveDistance14MeV[50, 42] -> 1.2211581217332044`,
        effectiveDistance14MeV[51, 41] -> 1.215367096695998,
        effectiveDistance14MeV[52, 40] -> 1.2059351925457469`,
        effectiveDistance14MeV[53, 39] -> 1.1973815299251094`,
        effectiveDistance14MeV[54, 38] -> 1.1853461077961094`,
        effectiveDistance14MeV[55, 37] -> 1.1742338579057232`,
        effectiveDistance14MeV[56, 36] -> 1.1589539200128798`,
        effectiveDistance14MeV[57, 35] -> 1.144407013359502,
        effectiveDistance14MeV[58, 34] -> 1.1258455448232239`,
        effectiveDistance14MeV[59, 33] -> 1.1078912283112905`,
        effectiveDistance14MeV[60, 32] -> 1.0861016680459614`,
        effectiveDistance14MeV[61, 31] -> 1.064736985742033,
        effectiveDistance14MeV[62, 30] -> 1.0398519194997988`,
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       effectiveDistance14MeV[63, 29] -> 1.0150732843591346`,
       effectiveDistance14MeV[64, 28] -> 0.9871993417277237,
       effectiveDistance14MeV[65, 27] -> 0.9687701409650603,
       effectiveDistance14MeV[66, 26] -> 0.8746408951362633,
       effectiveDistance14MeV[67, 25] -> 0.7123886309406423,
       effectiveDistance14MeV[68, 24] -> 0.35876425862482025`,
       effectiveDistance14MeV[69, 23] -> 0.001311963244886436}};

optResult0253eVRe2 = { 2.5504328621589304`*^-14,
     {fermiEnergy0253eV[23, 69] -> 1., fermiEnergy0253eV[24, 68] ->
       0.9999999999999994, fermiEnergy0253eV[25, 67] -> 0.9999999999998205,
      fermiEnergy0253eV[26, 66] -> 0.9999999994284072, fermiEnergy0253eV[27, 65] ->
       0.9999999892669273, fermiEnergy0253eV[28, 64] -> -0.08332961195879539,
      fermiEnergy0253eV[29, 63] -> 2.0128098496486304`,
      fermiEnergy0253eV[30, 62] -> 0.005140604974893137,
      fermiEnergy0253eV[31, 61] -> 2.2612756721932734`,
      fermiEnergy0253eV[32, 60] -> 0.0553275726435359,
      fermiEnergy0253eV[33, 59] -> 2.4840776445219,
      fermiEnergy0253eV[34, 58] -> 0.7111951722624736,
      fermiEnergy0253eV[35, 57] -> 2.8815150799437115`,
      fermiEnergy0253eV[36, 56] -> 0.942235814931401,
      fermiEnergy0253eV[37, 55] -> 2.3604852850853293`,
      fermiEnergy0253eV[38, 54] -> -0.7529240621654746,
      fermiEnergy0253eV[39, 53] -> 0.5185305355917069,
      fermiEnergy0253eV[40, 52] -> -1.1578222938336693`,
      fermiEnergy0253eV[41, 51] -> 1.067128028110606,
      fermiEnergy0253eV[42, 50] -> -0.7339753812206297,
      fermiEnergy0253eV[43, 49] -> 2.1028462749331998`,
      fermiEnergy0253eV[44, 48] -> 0.11440110569124942`,
      fermiEnergy0253eV[45, 47] -> 2.7565311854901706`,
      fermiEnergy0253eV[46, 46] -> 1.012703906694923,
      fermiEnergy0253eV[47, 45] -> 2.884122669045294,
      fermiEnergy0253eV[48, 44] -> -0.042913596716281664`,
      fermiEnergy0253eV[49, 43] -> 2.385832871349685,
      fermiEnergy0253eV[50, 42] -> -0.46783125636230133`,
      fermiEnergy0253eV[51, 41] -> 1.3127943841496141`,
      fermiEnergy0253eV[52, 40] -> -1.082831036553636,
      fermiEnergy0253eV[53, 39] -> 0.529508069720061,
      fermiEnergy0253eV[54, 38] -> -0.6472929630960019,
      fermiEnergy0253eV[55, 37] -> 2.5889619319961548`,
      fermiEnergy0253eV[56, 36] -> 1.155082534750532,
      fermiEnergy0253eV[57, 35] -> 3.3460971347716004`,
      fermiEnergy0253eV[58, 34] -> 0.877600352885178,
      fermiEnergy0253eV[59, 33] -> 2.6428727157450456`,
      fermiEnergy0253eV[60, 32] -> 0.12797292743552435`,
      fermiEnergy0253eV[61, 31] -> 1.7519688662136086`,
      fermiEnergy0253eV[62, 30] -> -0.11357767582306551`,
      fermiEnergy0253eV[63, 29] -> 1.7812463966746948`,
      fermiEnergy0253eV[64, 28] -> -0.5783620662371741,
      fermiEnergy0253eV[65, 27] -> 0.9999999930172335,
      fermiEnergy0253eV[66, 26] -> 0.9999999996426322,
      fermiEnergy0253eV[67, 25] -> 0.9999999999998926, fermiEnergy0253eV[68, 24] ->
       0.9999999999999997, fermiEnergy0253eV[69, 23] -> 1.}};

optResult500keVRe2 =
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{3.0767116736656194`*^-13, {fermiEnergy500keV[23, 69] -> 0.9999999999999917,
   fermiEnergy500keV[24, 68] -> 0.9999999999879297,
   fermiEnergy500keV[25, 67] -> 0.9999999997318575,
   fermiEnergy500keV[26, 66] -> 0.999999935394742, fermiEnergy500keV[27, 65] ->
    0.9999997299475544, fermiEnergy500keV[28, 64] -> -1.693491660253764,
   fermiEnergy500keV[29, 63] -> 1.5985289117005845`, fermiEnergy500keV[30, 62] ->
    0.5177022597221228, fermiEnergy500keV[31, 61] -> 2.5086104779557514`,
   fermiEnergy500keV[32, 60] -> 1.1013347135918103`,
   fermiEnergy500keV[33, 59] -> 3.273369499062784,
   fermiEnergy500keV[34, 58] -> 1.3251695284837361`,
   fermiEnergy500keV[35, 57] -> 3.0161437684817796`,
   fermiEnergy500keV[36, 56] -> 0.7459445589018973,
   fermiEnergy500keV[37, 55] -> 1.8641515044503525`,
   fermiEnergy500keV[38, 54] -> -1.103396511427162,
   fermiEnergy500keV[39, 53] -> -0.03322032330689482,
   fermiEnergy500keV[40, 52] -> -1.651167394515918,
   fermiEnergy500keV[41, 51] -> 1.1596998553892994`,
   fermiEnergy500keV[42, 50] -> -0.3271350448751142,
   fermiEnergy500keV[43, 49] -> 1.9172985707362071`,
   fermiEnergy500keV[44, 48] -> 0.2906916283886406,
   fermiEnergy500keV[45, 47] -> 3.22392770484355,
   fermiEnergy500keV[46, 46] -> 1.660399080453632,
   fermiEnergy500keV[47, 45] -> 3.3073669961774668`,
   fermiEnergy500keV[48, 44] -> 0.39091595891900016`,
   fermiEnergy500keV[49, 43] -> 1.7040970454179132`,
   fermiEnergy500keV[50, 42] -> -0.3866869482929981,
   fermiEnergy500keV[51, 41] -> 1.0828251902866426`,
   fermiEnergy500keV[52, 40] -> -1.6015010233707014`,
   fermiEnergy500keV[53, 39] -> -0.009922312107532997,
   fermiEnergy500keV[54, 38] -> -1.2028161894796061`,
   fermiEnergy500keV[55, 37] -> 1.9142433638306222`,
   fermiEnergy500keV[56, 36] -> 0.6549245973395503,
   fermiEnergy500keV[57, 35] -> 3.1222720735385363`,
   fermiEnergy500keV[58, 34] -> 1.2128597096251008`,
   fermiEnergy500keV[59, 33] -> 3.2361442983285684`,
   fermiEnergy500keV[60, 32] -> 1.100736416749928,
   fermiEnergy500keV[61, 31] -> 2.5642851908951036`,
   fermiEnergy500keV[62, 30] -> 0.5801275743111864,
   fermiEnergy500keV[63, 29] -> 1.8767091227700519`,
   fermiEnergy500keV[64, 28] -> -1.909135295234164,
   fermiEnergy500keV[65, 27] -> 0.9999997135937392,
   fermiEnergy500keV[66, 26] -> 0.9999999311332362,
   fermiEnergy500keV[67, 25] -> 0.9999999997125738,
   fermiEnergy500keV[68, 24] -> 0.9999999999869816,
   fermiEnergy500keV[69, 23] -> 0.9999999999999909}};

optResult14MeVRe2 =
  {1.0945979513204826`*^-24, {fermiEnergy14MeV[23, 69] -> 0.9943349144950228,
   fermiEnergy14MeV[24, 68] -> 0.9271131744978163,
   fermiEnergy14MeV[25, 67] -> 0.7709242358227992, fermiEnergy14MeV[26, 66] ->
    -0.7710055350537959, fermiEnergy14MeV[27, 65] -> -2.4313608277721843`,
   fermiEnergy14MeV[28, 64] -> -2.872655582359593, fermiEnergy14MeV[29, 63] ->
    0.8859073614160442, fermiEnergy14MeV[30, 62] -> 0.23614789552125878`,
   fermiEnergy14MeV[31, 61] -> 3.4181915870649124`,
   fermiEnergy14MeV[32, 60] -> 1.8149861957562392`,
```

```
fermiEnergy14MeV[33, 59] -> 4.9512072657215525`,
fermiEnergy14MeV[34, 58] -> 2.547857598319923,
fermiEnergy14MeV[35, 57] -> 4.380749430808081,
fermiEnergy14MeV[36, 56] -> 1.6851028777055068`,
fermiEnergy14MeV[37, 55] -> 3.0914054734075798`,
fermiEnergy14MeV[38, 54] -> -0.2638167992831118,
fermiEnergy14MeV[39, 53] -> 1.1215604271739001`,
fermiEnergy14MeV[40, 52] -> -1.6327259866474377`,
fermiEnergy14MeV[41, 51] -> 0.5909583379487915,
fermiEnergy14MeV[42, 50] -> -1.9308594241332024`,
fermiEnergy14MeV[43, 49] -> 1.518866857138344,
fermiEnergy14MeV[44, 48] -> 0.2533952340608845,
fermiEnergy14MeV[45, 47] -> 3.28848359316696,
fermiEnergy14MeV[46, 46] -> 1.1890000221980506`,
fermiEnergy14MeV[47, 45] -> 3.193220376023675,
fermiEnergy14MeV[48, 44] -> -0.004396711278625382,
fermiEnergy14MeV[49, 43] -> 2.0216132064783032`,
fermiEnergy14MeV[50, 42] -> -1.4519447343466363`,
fermiEnergy14MeV[51, 41] -> 0.6645983464230867,
fermiEnergy14MeV[52, 40] -> -1.54982896512629,
fermiEnergy14MeV[53, 39] -> 1.1695764631427517`,
fermiEnergy14MeV[54, 38] -> -0.18932924949278562`,
fermiEnergy14MeV[55, 37] -> 3.6097587115973284`,
fermiEnergy14MeV[56, 36] -> 1.7654279060491023`,
fermiEnergy14MeV[57, 35] -> 4.804259016162324,
fermiEnergy14MeV[58, 34] -> 2.3698987615050795`,
fermiEnergy14MeV[59, 33] -> 4.707657201717666,
fermiEnergy14MeV[60, 32] -> 1.7397913529489857`,
fermiEnergy14MeV[61, 31] -> 3.2947746730081566`,
fermiEnergy14MeV[62, 30] -> -0.012545127721032955`,
fermiEnergy14MeV[63, 29] -> 0.6210288001958488,
fermiEnergy14MeV[64, 28] -> -2.8764562590620155`,
fermiEnergy14MeV[65, 27] -> -1.9858328190663634`,
fermiEnergy14MeV[66, 26] -> -0.5232741264560051,
fermiEnergy14MeV[67, 25] -> 0.805440207548416,
fermiEnergy14MeV[68, 24] -> 0.9389461562364518,
fermiEnergy14MeV[69, 23] -> 0.995326646291881}};
```