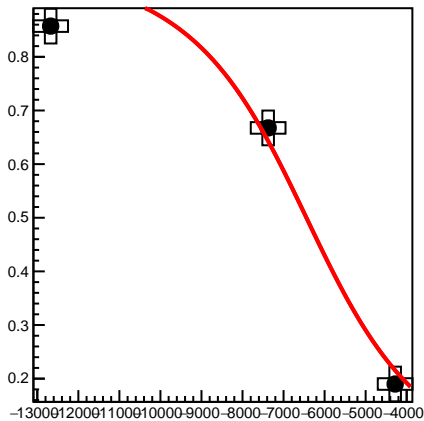
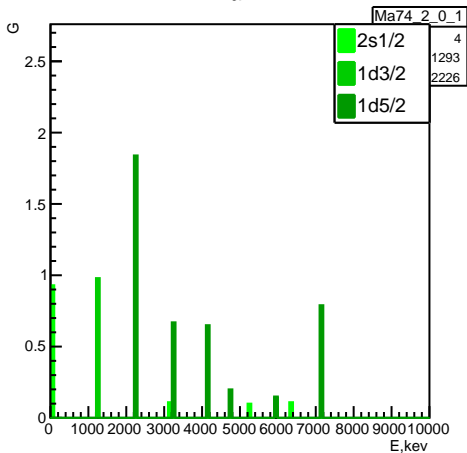
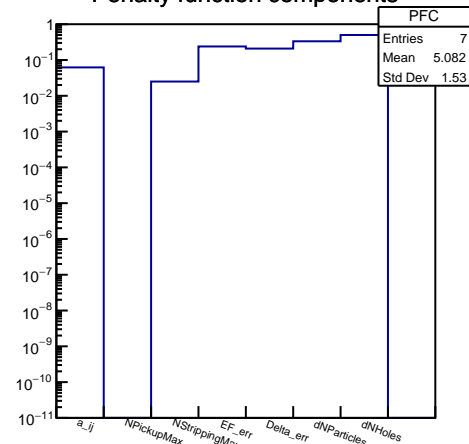


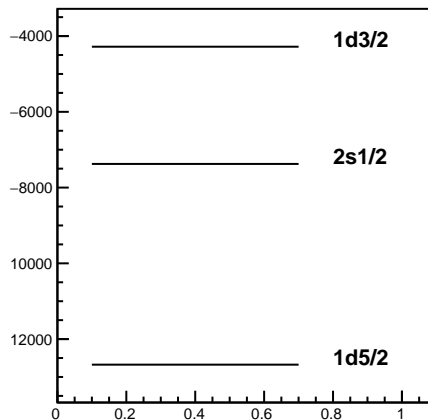
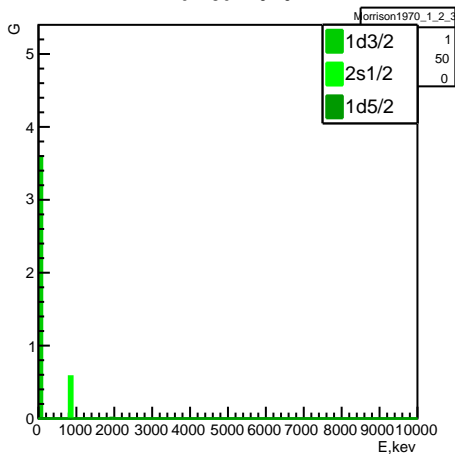
Ma74



Penalty function components



Morrison1970



**Experiment: Ma74 (12) Morrison1970 (3)**

**proton transfer**

**p separation energy A:8863.17, A+1: 2277.5**

**E\_F: -6442.89  $\pm$  562.681 keV**

**$\Delta$ : 3124.13  $\pm$  1368.94 keV**

**penalty: 0.263053**

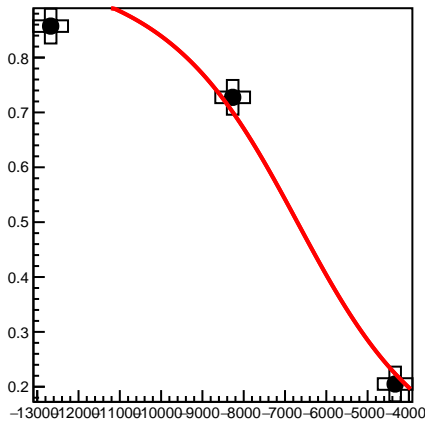
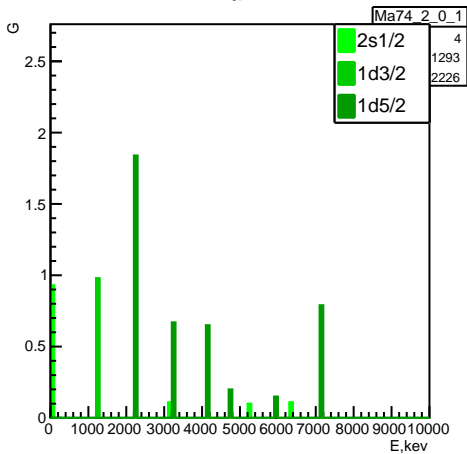
**SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$**

**-7375.56 2s1/2 0.6675 0.915**

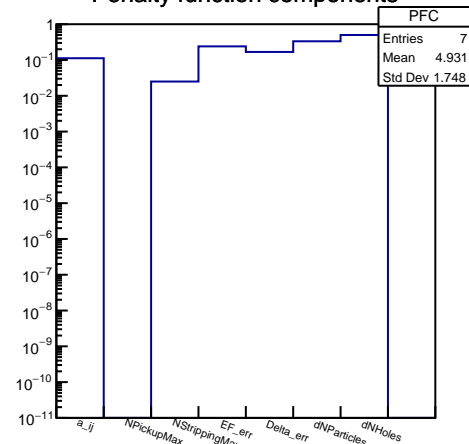
**-4280.69 1d3/2 0.19 1.18**

**-12675 1d5/2 0.857333 0.718667**

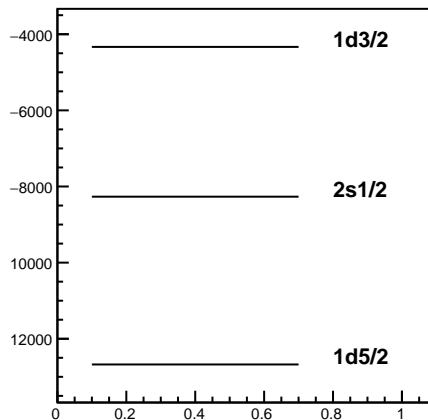
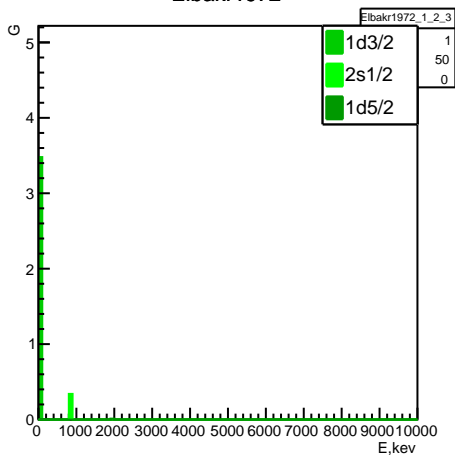
Ma74



Penalty function components



Elbakt1972



Experiment: Ma74 (12) Elbakt1972 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

 $E_F$ : -6701.18  $\pm$  566.003 keV $\Delta$ : -3573.33  $\pm$  1102.13 keV

penalty: 0.265121

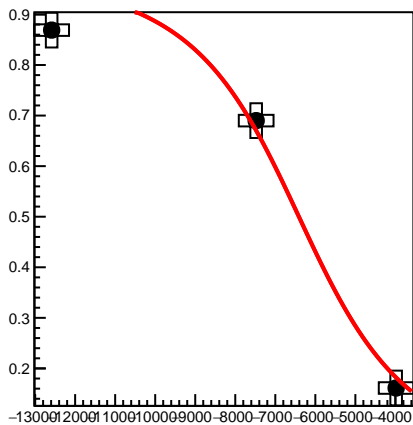
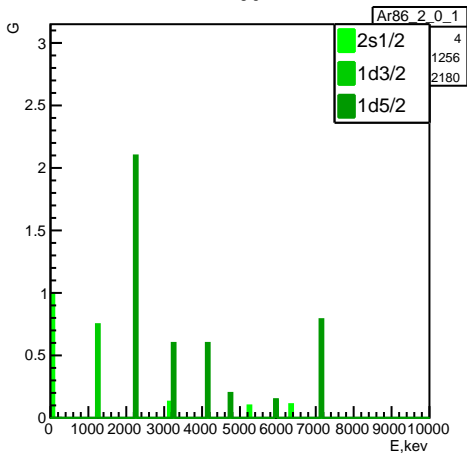
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$ 

-8267.42 2s1/2 0.7275 0.795

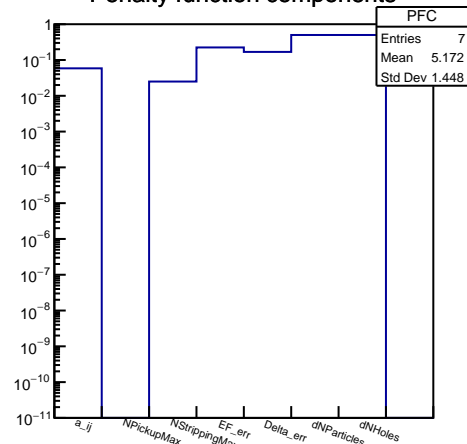
-4332.95 1d3/2 0.205 1.15

-12675 1d5/2 0.857333 0.718667

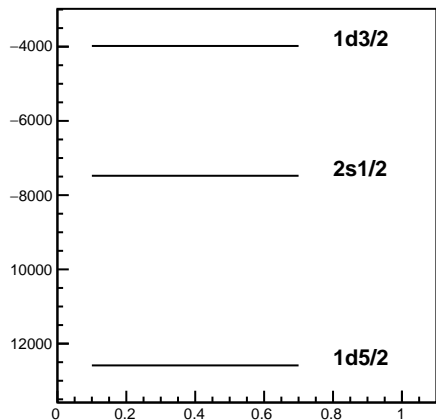
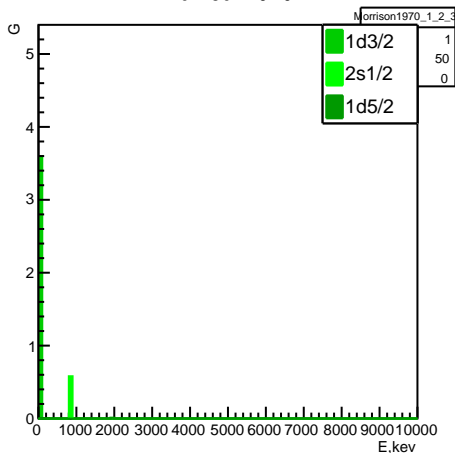
Ar86



Penalty function components



Morrison1970



Experiment: Ar86 (12) Morrison1970 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6410.38  $\pm$  528.561 keV

$\Delta$ : 2946.31  $\pm$  1104.59 keV

penalty: 0.283878

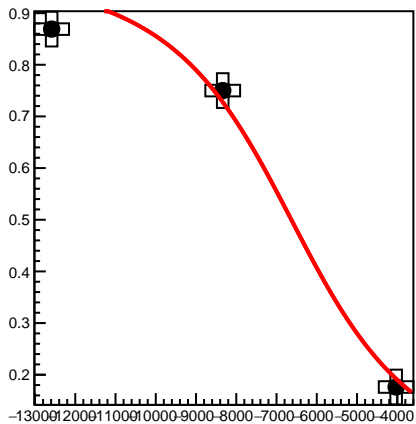
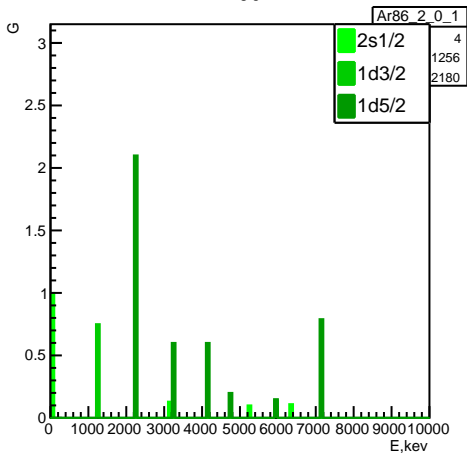
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-7477.94 2s1/2 0.69 0.96

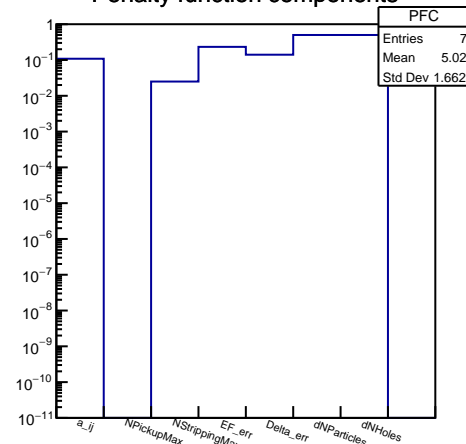
-3981.1 1d3/2 0.16125 1.1225

-12586.7 1d5/2 0.869 0.742

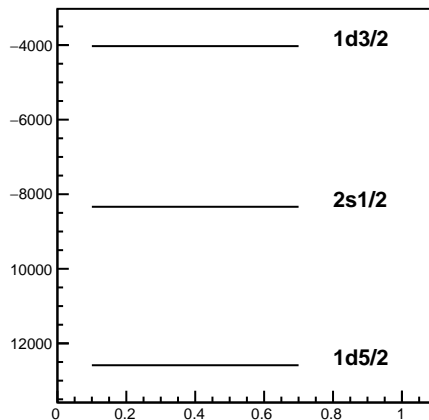
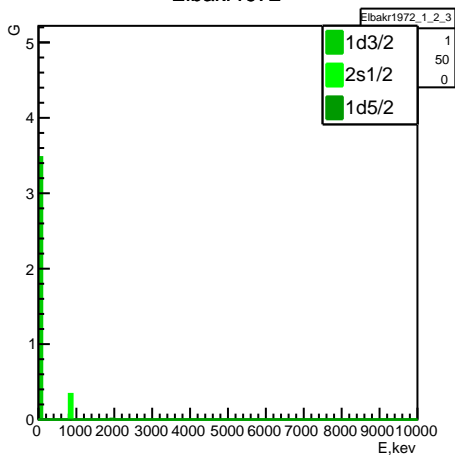
Ar86



Penalty function components



Elbakt1972



Experiment: Ar86 (12) Elbakt1972 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

$E_F$ : -6631.42  $\pm$  548.657 keV

$\Delta$ : -3330.01  $\pm$  922.751 keV

penalty: 0.289806

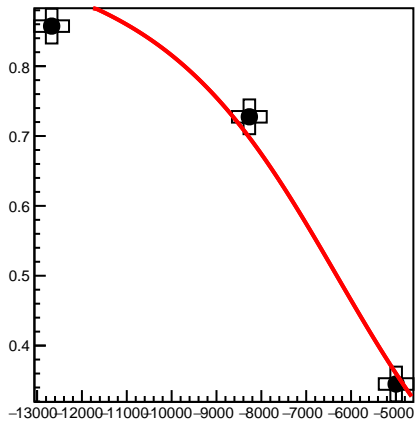
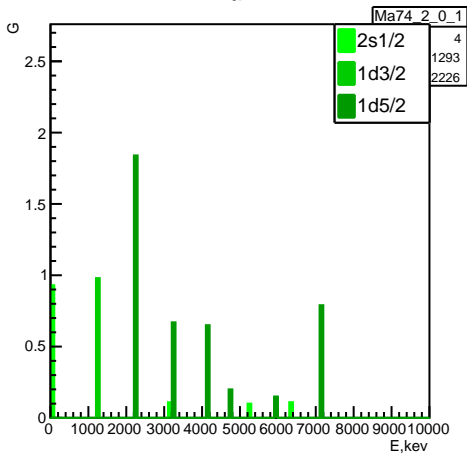
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-8336.65 2s1/2 0.75 0.84

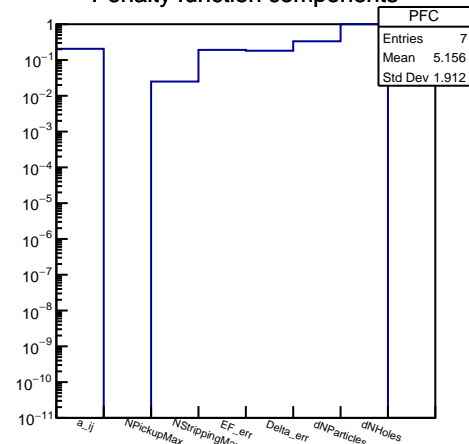
-4027.88 1d3/2 0.17625 1.0925

-12586.7 1d5/2 0.869 0.742

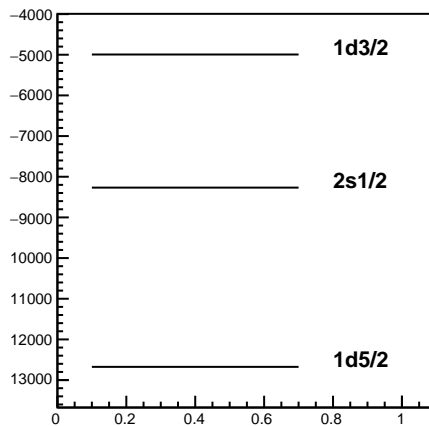
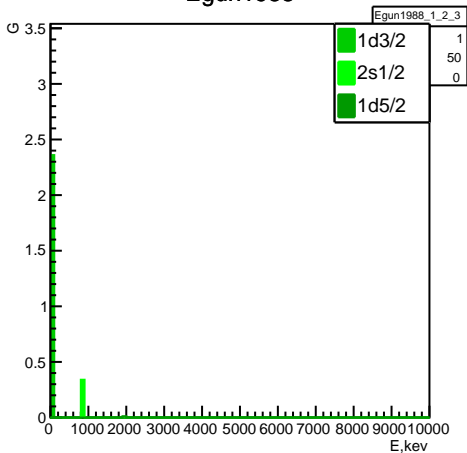
Ma74



Penalty function components



Egun1988



Experiment: Ma74 (12) Egun1988 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6317.55  $\pm$  451.235 keV

$\Delta$ : 4524.95  $\pm$  1191.42 keV

penalty: 0.372472

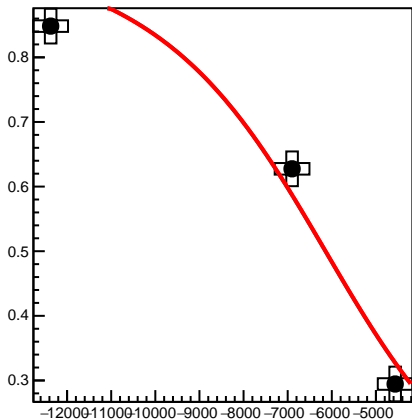
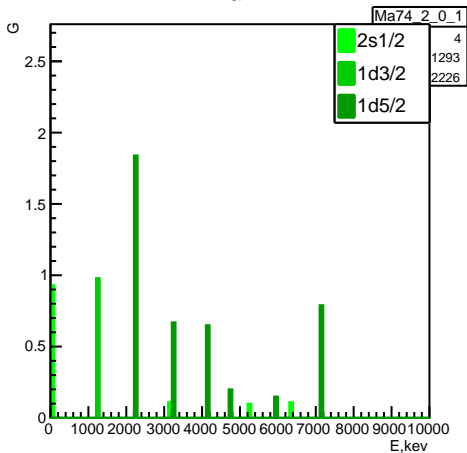
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-8267.42 2s1/2 0.7275 0.795

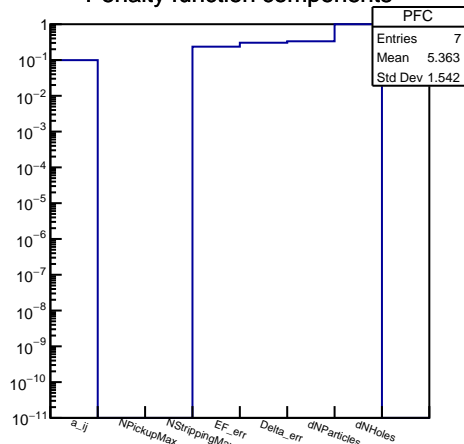
-4994.47 1d3/2 0.345 0.87

-12675 1d5/2 0.857333 0.718667

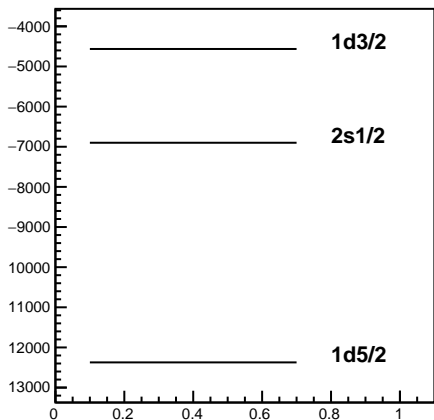
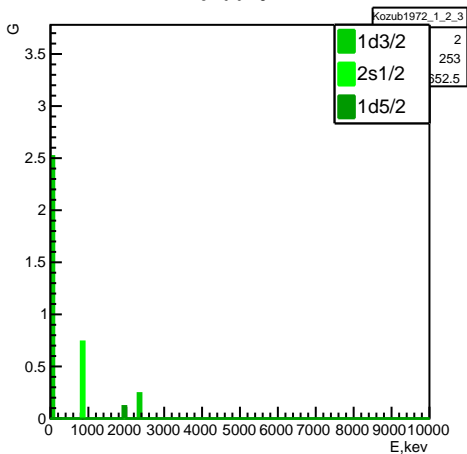
Ma74



Penalty function components



Kozub1972



Experiment: Ma74 (12) Kozub1972 (4)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

 $E_F: -6142.69 \pm 555.473 \text{ keV}$  $\Delta: -4289.94 \pm 1993.69 \text{ keV}$ 

penalty: 0.379232

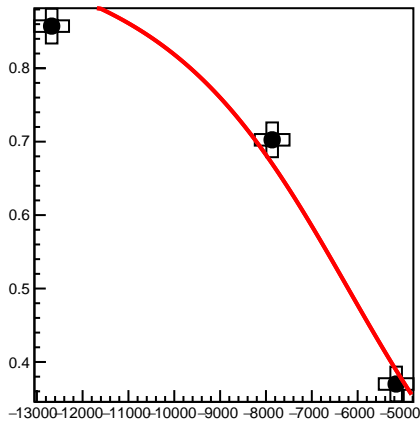
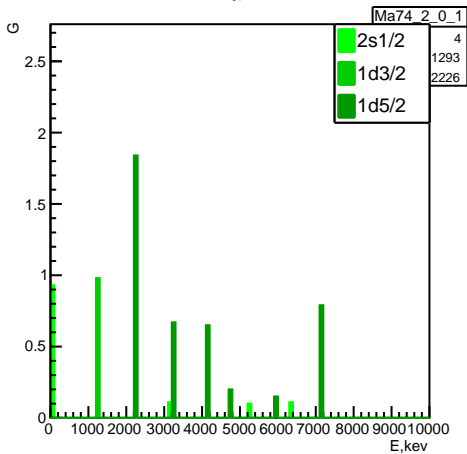
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$ 

-6900.49 2s1/2 0.6275 0.995

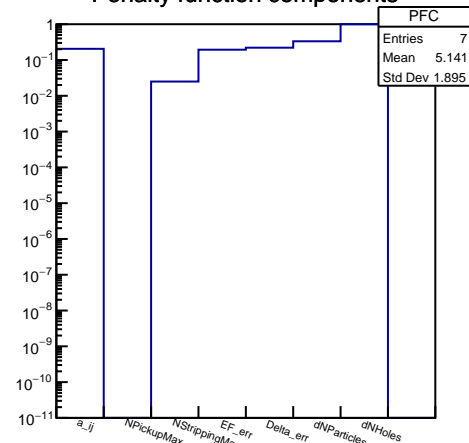
-4564.11 1d3/2 0.2945 0.971

-12372.4 1d5/2 0.848333 0.736667

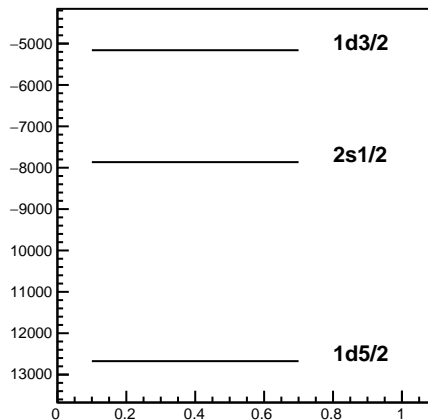
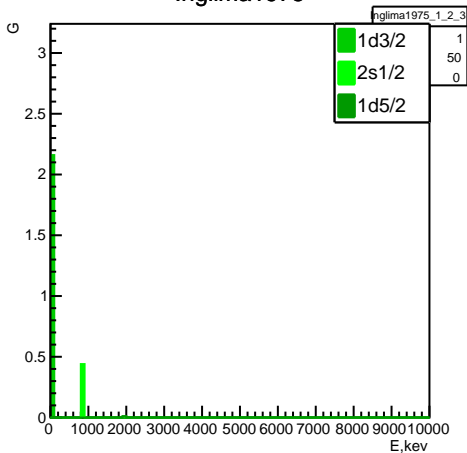
Ma74



Penalty function components



Inglima1975



Experiment: Ma74 (12) Inglima1975 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6207.37  $\pm$  457.285 keV

$\Delta$ : -4585.91  $\pm$  1449.13 keV

penalty: 0.380517

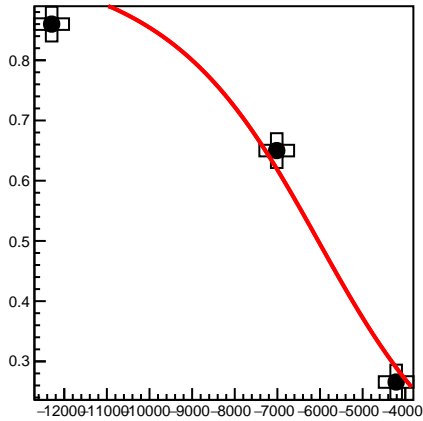
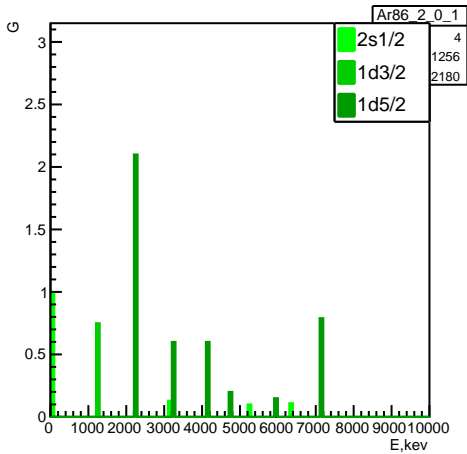
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-7865.03 2s1/2 0.7025 0.845

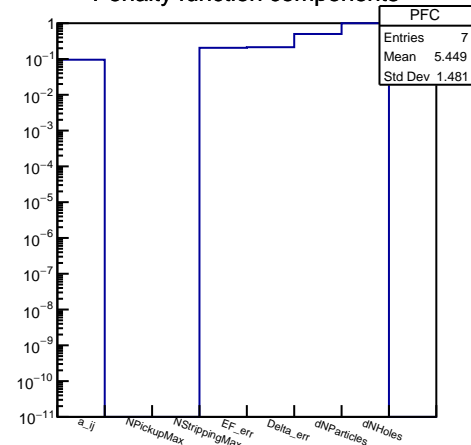
-5160.14 1d3/2 0.37 0.82

-12675 1d5/2 0.857333 0.718667

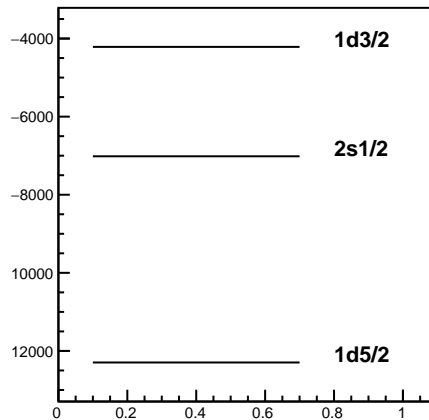
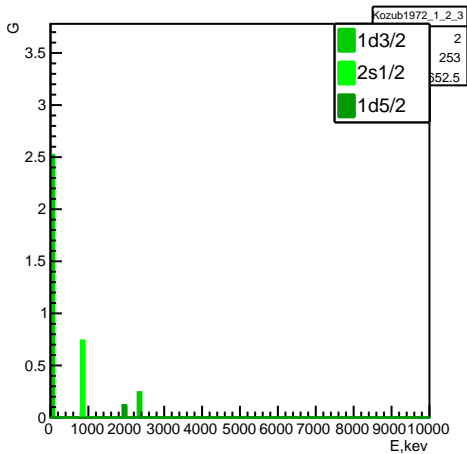
Ar86



Penalty function components



Kozub1972



Experiment: Ar86 (12) Kozub1972 (4)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

 $E_F: -6041.02 \pm 483.741$  keV $\Delta: -3943.82 \pm 1402.68$  keV

penalty: 0.387416

SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$ 

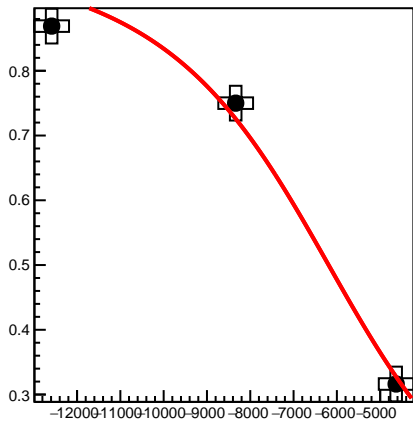
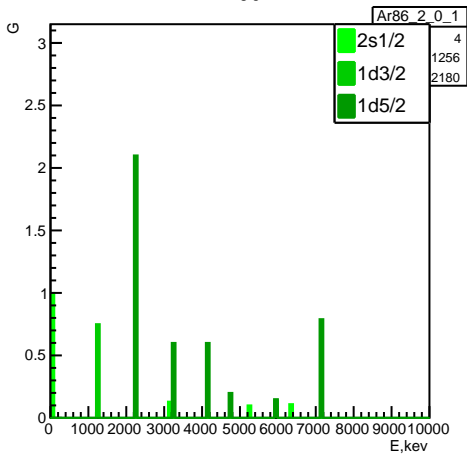
-7015.55 2s1/2 0.65 1.04

-4213.81 1d3/2 0.26575 0.9135

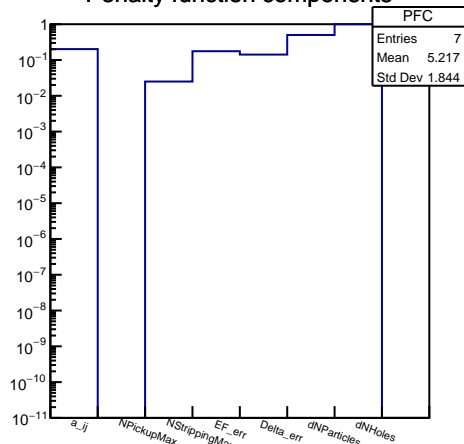
-12295.5 1d5/2 0.86 0.76



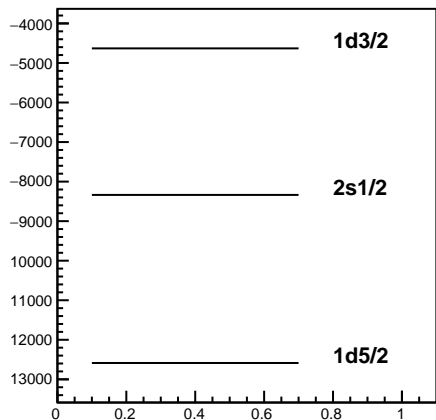
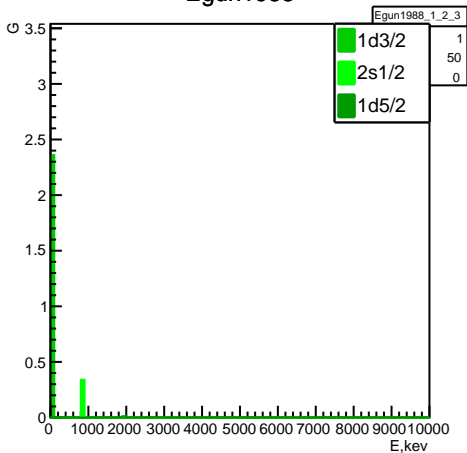
Ar86



Penalty function components



Egun1988



Experiment: Ar86 (12) Egun1988 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6190.49  $\pm$  414.654 keV $\Delta$ : 4239.56  $\pm$  930.062 keV

penalty: 0.393184

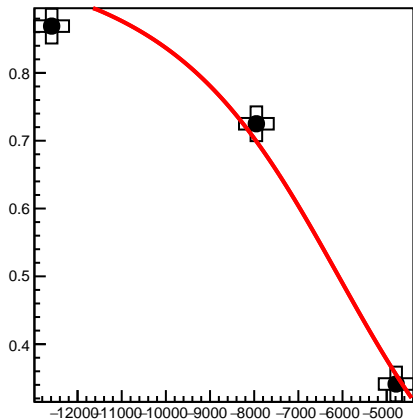
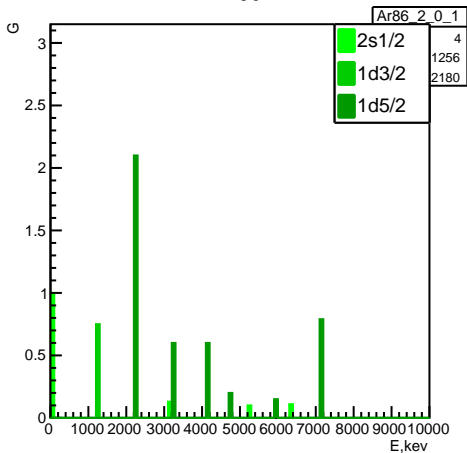
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$ 

-8336.65 2s1/2 0.75 0.84

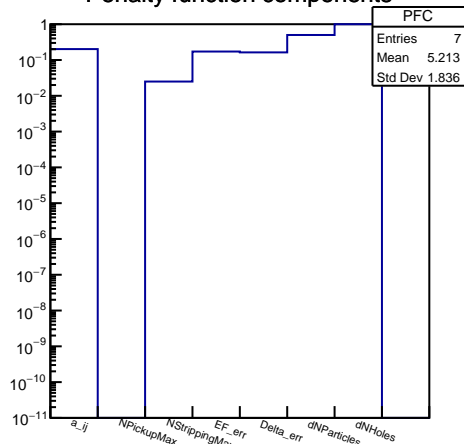
-4631.09 1d3/2 0.31625 0.8125

-12586.7 1d5/2 0.869 0.742

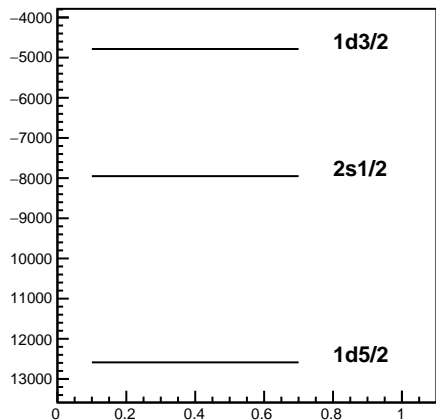
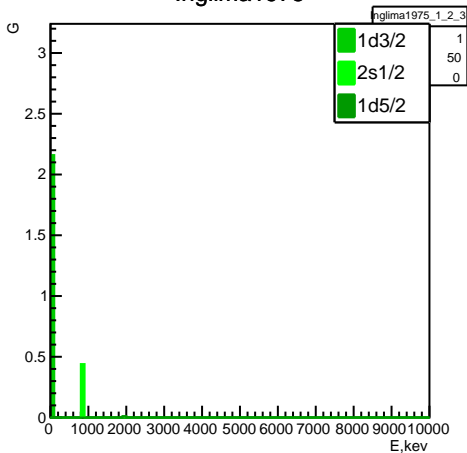
Ar86



Penalty function components



Inglima1975



Experiment: Ar86 (12) Inglima1975 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

$E_F$ : -6086.9  $\pm$  406.07 keV

$\Delta$ : -4292.71  $\pm$  1071.57 keV

penalty: 0.39663

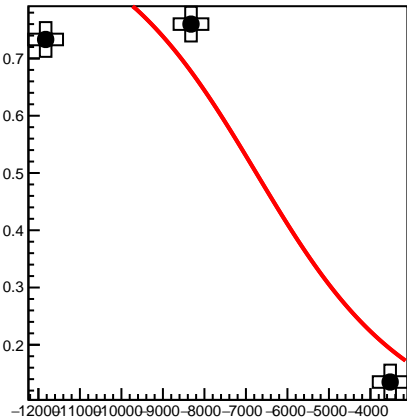
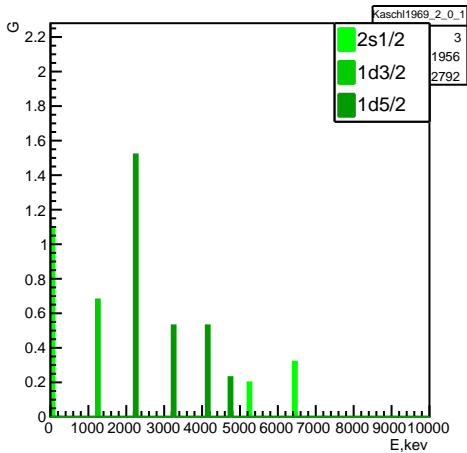
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-7950.71 2s1/2 0.725 0.89

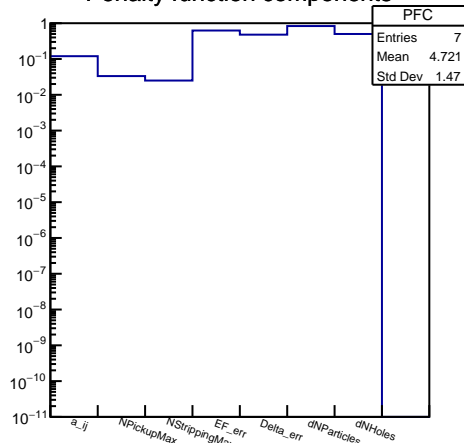
-4785.42 1d3/2 0.34125 0.7625

-12586.7 1d5/2 0.869 0.742

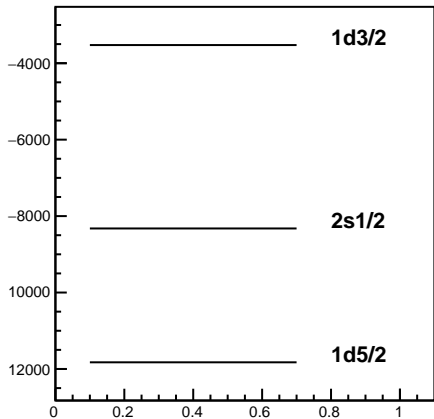
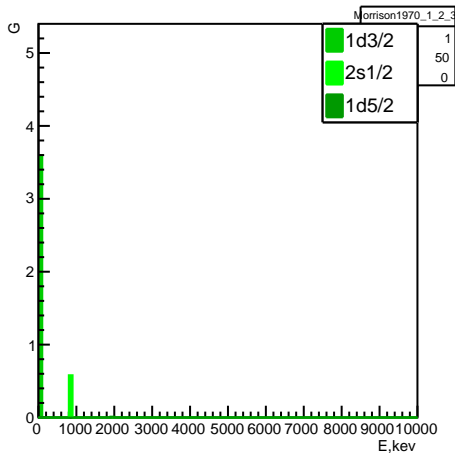
Kaschl1969



Penalty function components



Morrison1970



Experiment: Kaschl1969 (8) Morrison1970 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6750.99 ± 1472.04 keV

Δ: 4144.49 ± 3142.74 keV

penalty: 0.502934

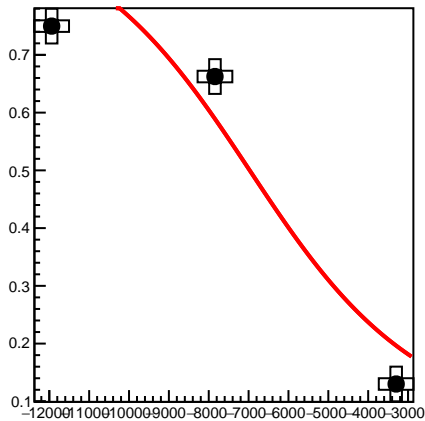
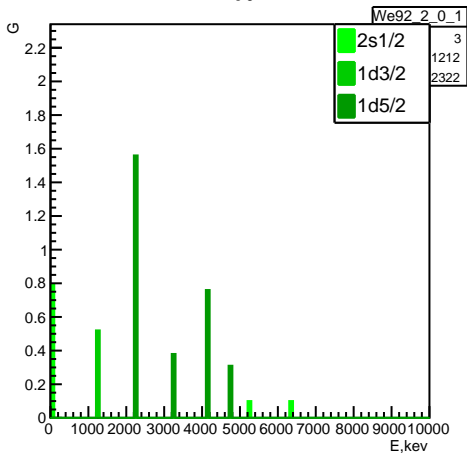
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-8323.51 2s1/2 0.76 1.1

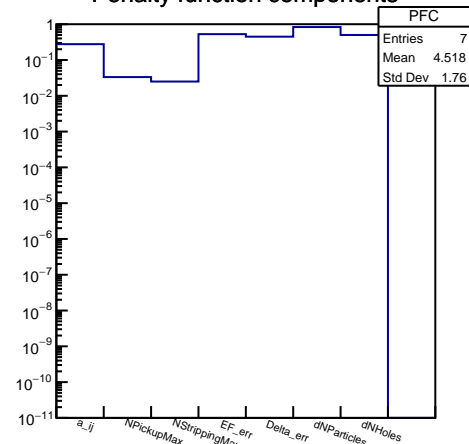
-3524.98 1d3/2 0.135 1.07

-11825.6 1d5/2 0.733167 0.470333

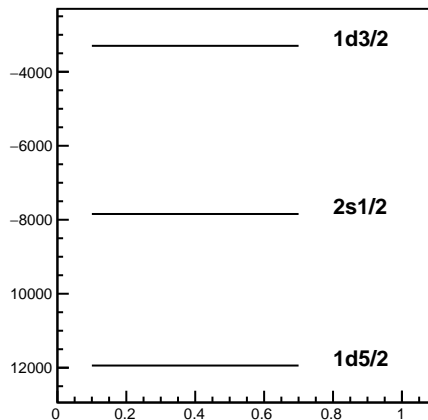
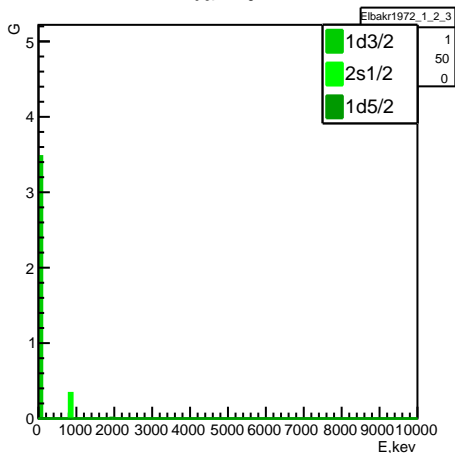
We92



Penalty function components



Elbakr1972



Experiment: We92 (8) Elbakr1972 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6972.46  $\pm$  1243.71 keV

$\Delta$ : 4809.18  $\pm$  2941.99 keV

penalty: 0.508649

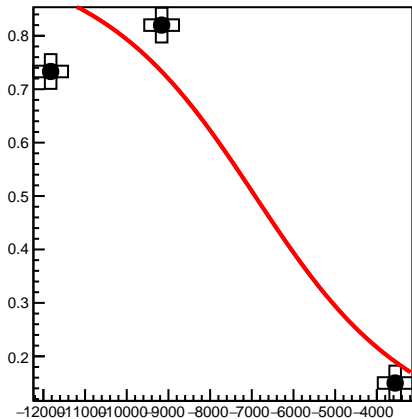
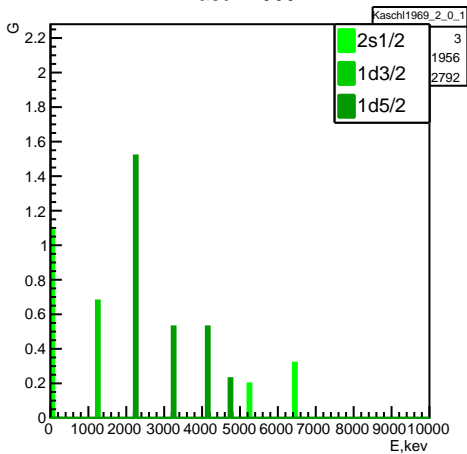
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-7844.09 2s1/2 0.6625 0.665

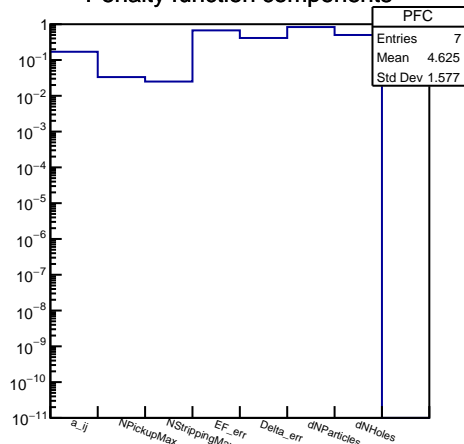
-3298.24 1d3/2 0.13 1

-11941.1 1d5/2 0.749833 0.503667

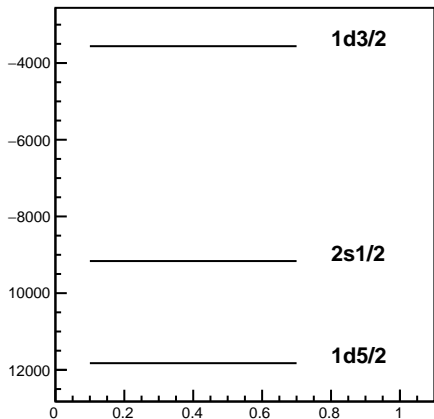
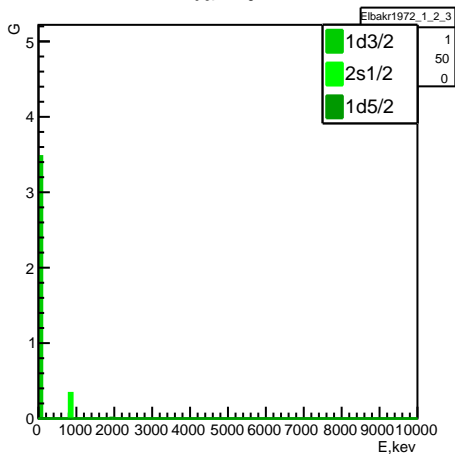
Kaschl1969



Penalty function components



Elbakr1972



Experiment: Kaschl1969 (8) Elbakr1972 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6920.9 ± 1584.13 keV

Δ: 4250.82 ± 2706.61 keV

penalty: 0.508919

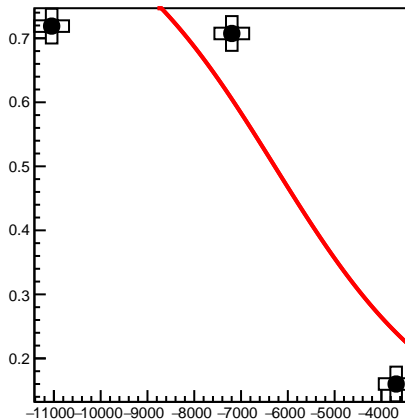
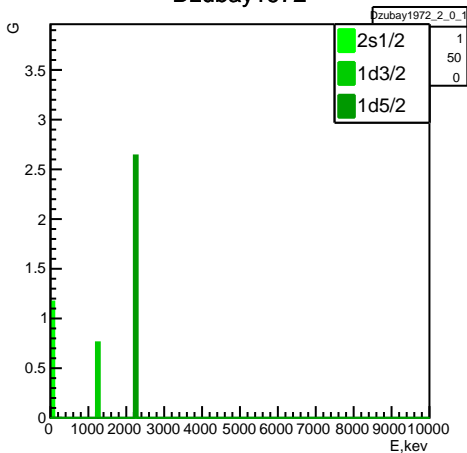
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-9163.09 2s1/2 0.82 0.98

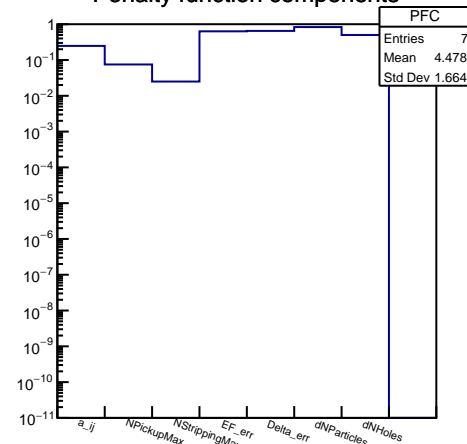
-3560.97 1d3/2 0.15 1.04

-11825.6 1d5/2 0.733167 0.470333

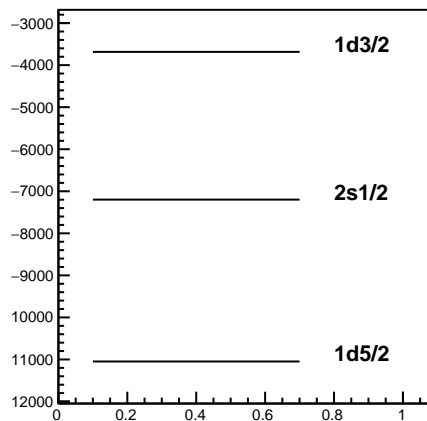
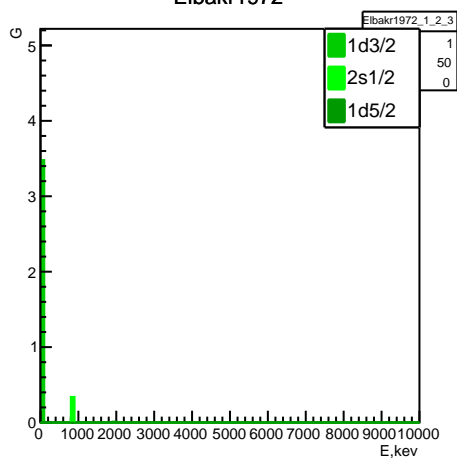
Dzubay1972



Penalty function components



Elbakr1972



Experiment: Dzubay1972 (3) Elbakr1972 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6280.19  $\pm$  1491.15 keV

$\Delta$ : -4265.17  $\pm$  4266.26 keV

penalty: 0.570001

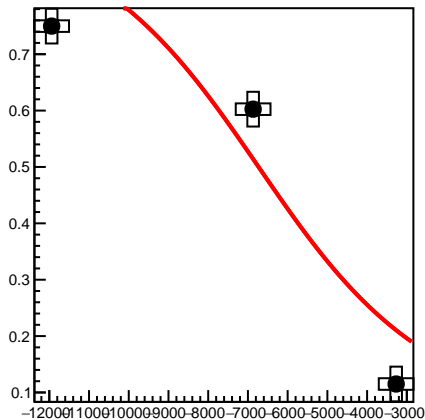
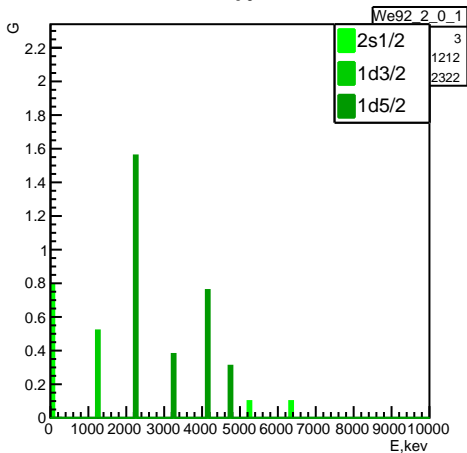
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-7197.79 2s1/2 0.7075 0.755

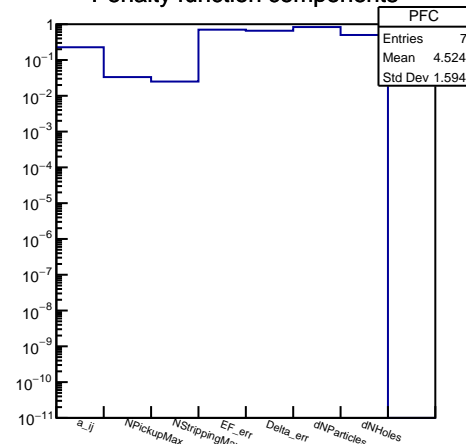
-3684.9 1d3/2 0.16 1.06

-11047.9 1d5/2 0.719 0.442

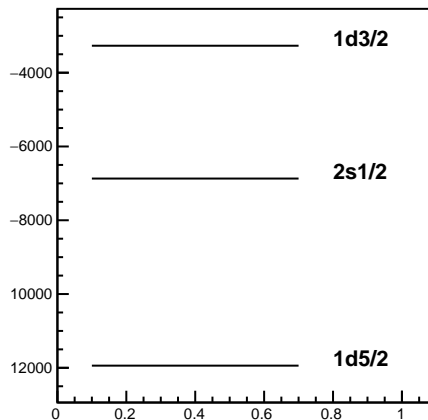
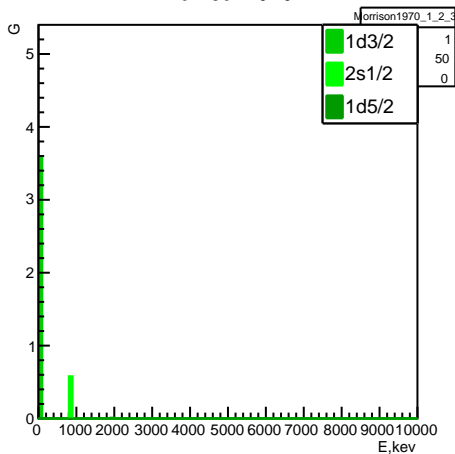
We92



Penalty function components



Morrison1970



Experiment: We92 (8) Morrison1970 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6731.85  $\pm$  1658.58 keV

$\Delta$ : -4875.87  $\pm$  4312.24 keV

penalty: 0.57305

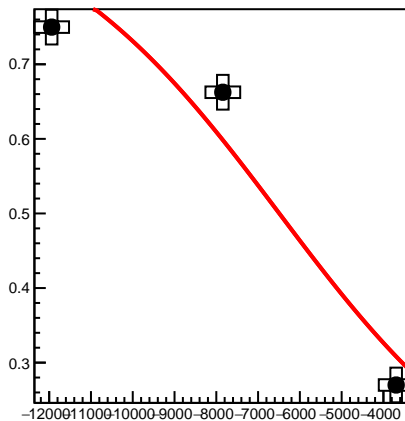
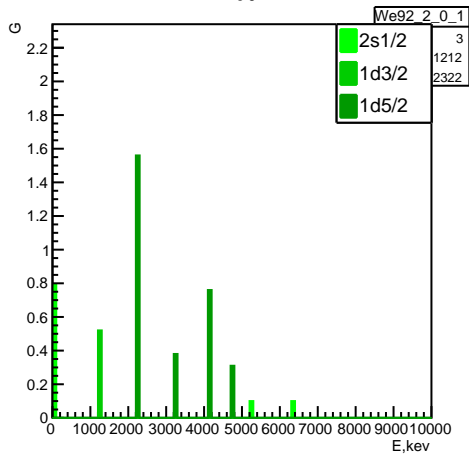
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-6869.24 2s1/2 0.6025 0.785

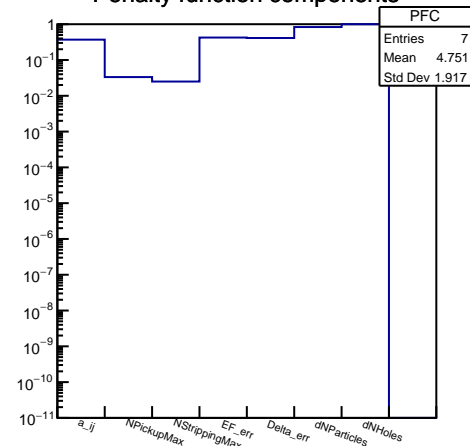
-3268.51 1d3/2 0.115 1.03

-11941.1 1d5/2 0.749833 0.503667

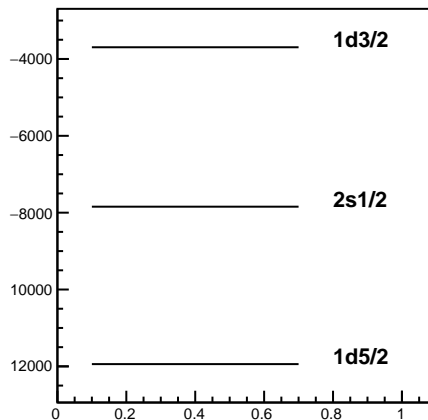
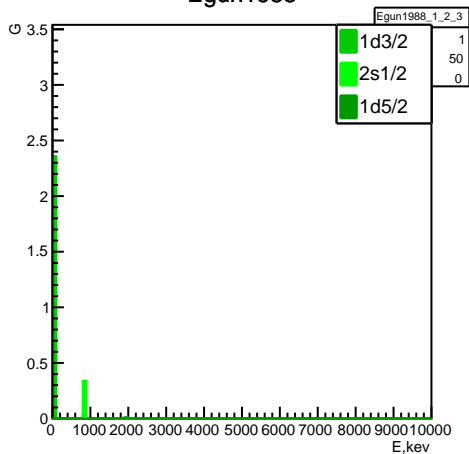
We92



Penalty function components



Egun1988



Experiment: We92 (8) Egun1988 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6491.78  $\pm$  998.77 keV $\Delta$ : 6734.37  $\pm$  2700.77 keV

penalty: 0.595688

SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$ 

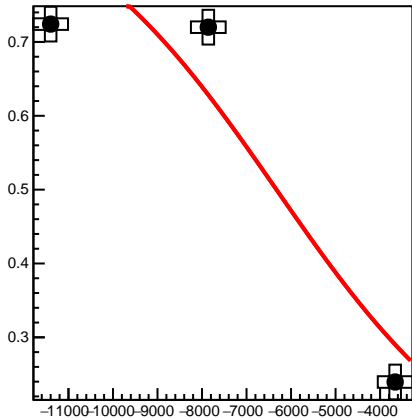
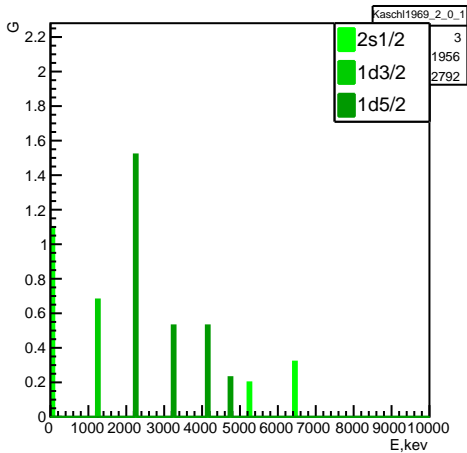
-7844.09 2s1/2 0.6625 0.665

-3695.19 1d3/2 0.27 0.72

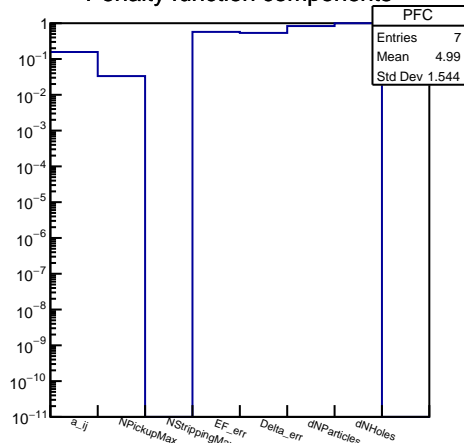
-11941.1 1d5/2 0.749833 0.503667



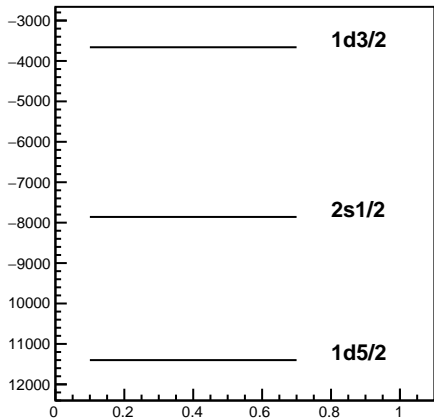
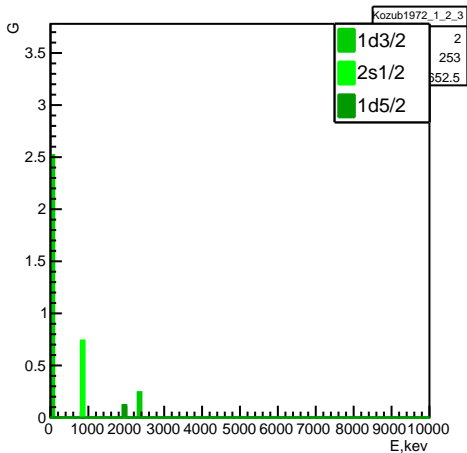
Kaschl1969



Penalty function components



Kozub1972



Experiment: Kaschl1969 (8) Kozub1972 (4)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6327.47  $\pm$  1347.08 keV

$\Delta$ : -5766.93  $\pm$  3514.27 keV

penalty: 0.602082

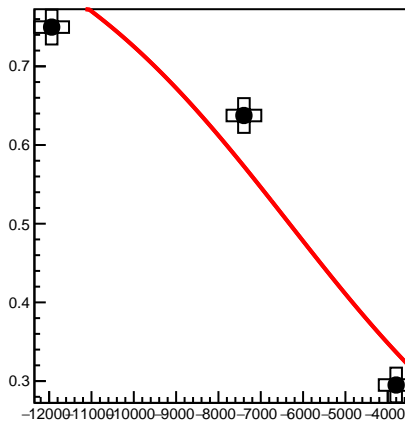
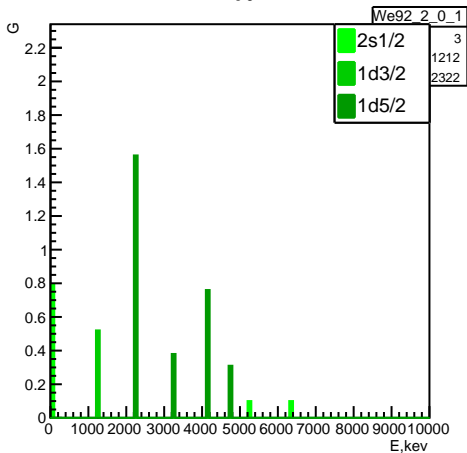
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-7858.66 2s1/2 0.72 1.18

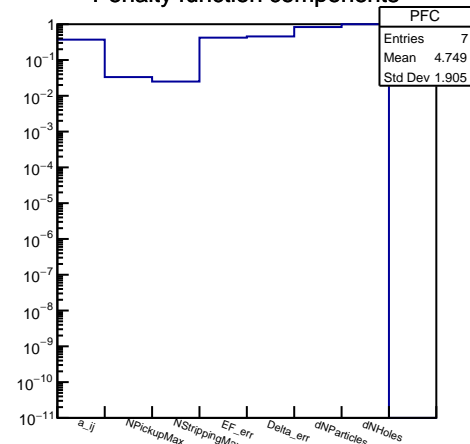
-3661.16 1d3/2 0.2395 0.861

-11400.4 1d5/2 0.724167 0.488333

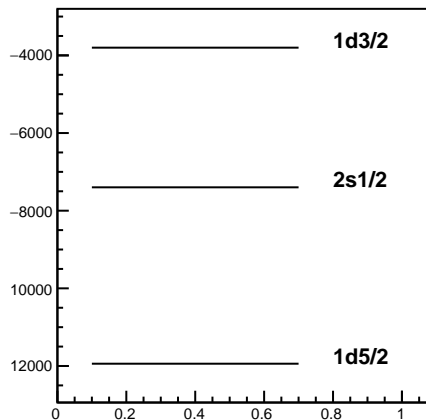
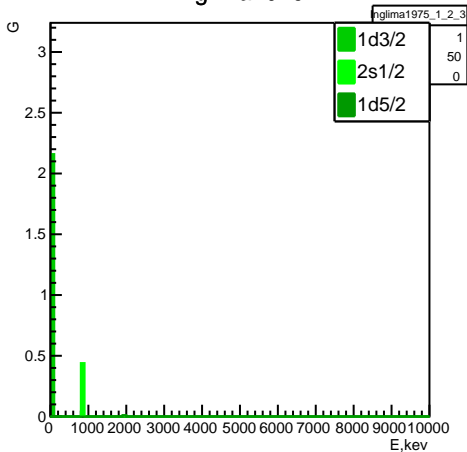
We92



Penalty function components



Inglima1975



Experiment: We92 (8) Inglima1975 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

 $E_F: -6322 \pm 991.898 \text{ keV}$  $\Delta: 7291.26 \pm 2989.2 \text{ keV}$ 

penalty: 0.603579

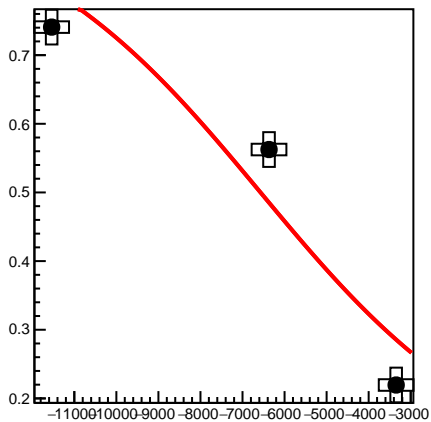
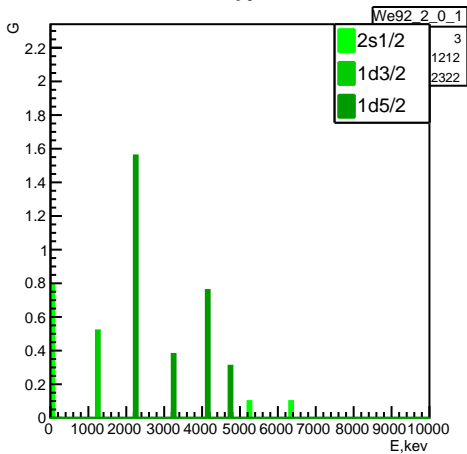
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$ 

-7398.14 2s1/2 0.6375 0.715

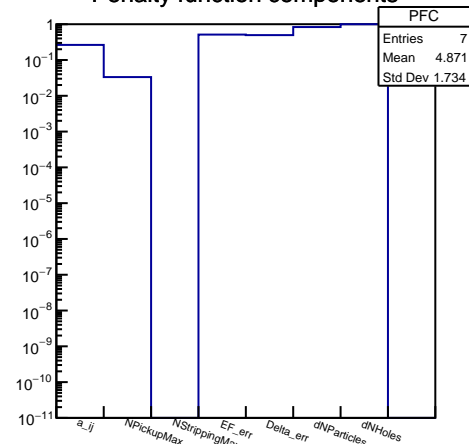
-3800.99 1d3/2 0.295 0.67

-11941.1 1d5/2 0.749833 0.503667

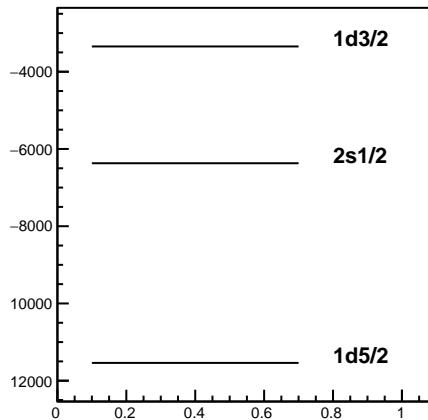
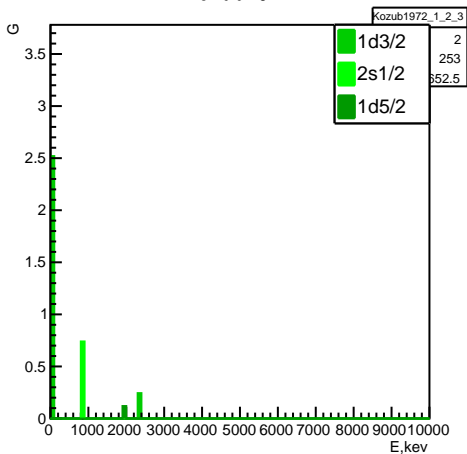
We92



Penalty function components



Kozub1972



Experiment: We92 (8) Kozub1972 (4)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6571.81  $\pm$  1208.86 keV

$\Delta$ : 6796.55  $\pm$  3254.67 keV

penalty: 0.603811

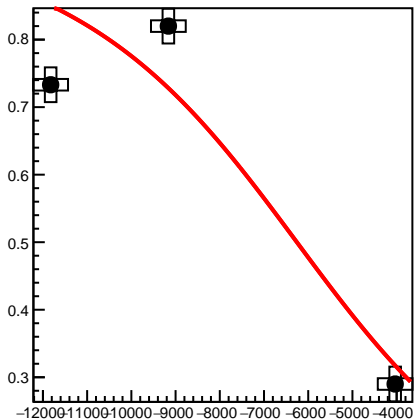
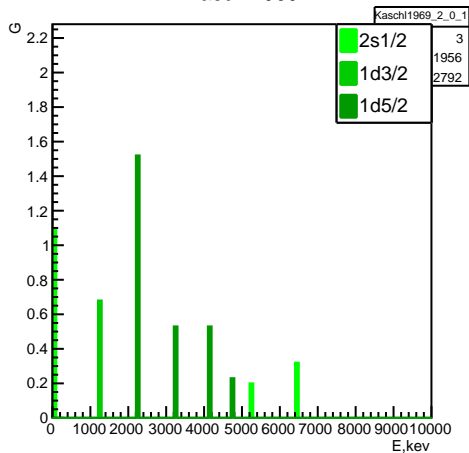
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-6369.61 2s1/2 0.5625 0.865

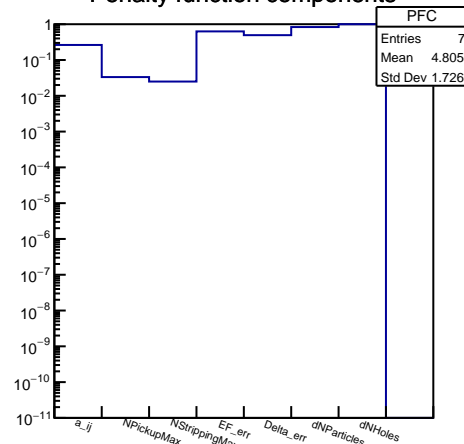
-3346.03 1d3/2 0.2195 0.821

-11539.1 1d5/2 0.740833 0.521667

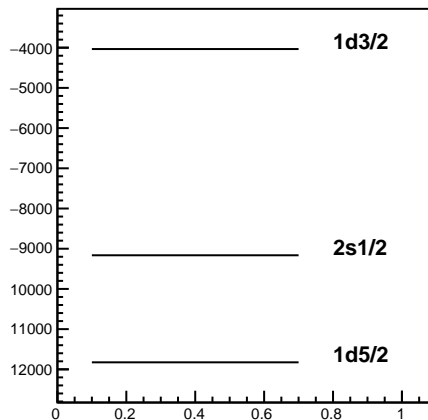
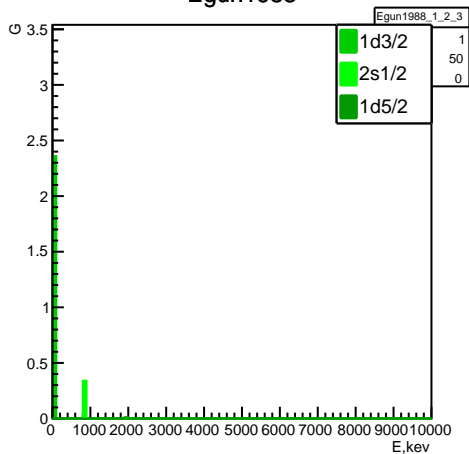
Kaschl1969



Penalty function components



Egun1988



Experiment: Kaschl1969 (8) Egun1988 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F:  $-6256.52 \pm 1483.67$  keV

$\Delta$ :  $5665.2 \pm 3244.81$  keV

penalty: 0.630592

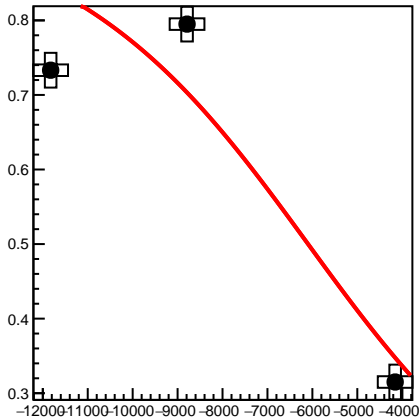
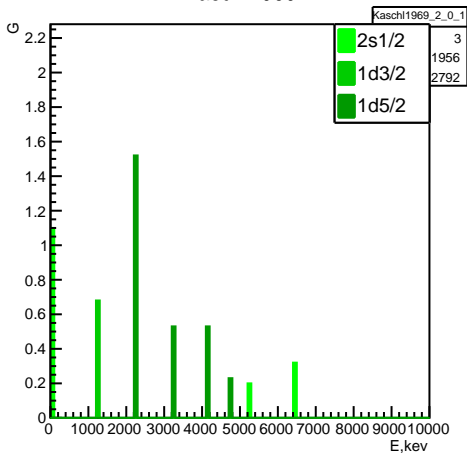
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-9163.09 2s1/2 0.82 0.98

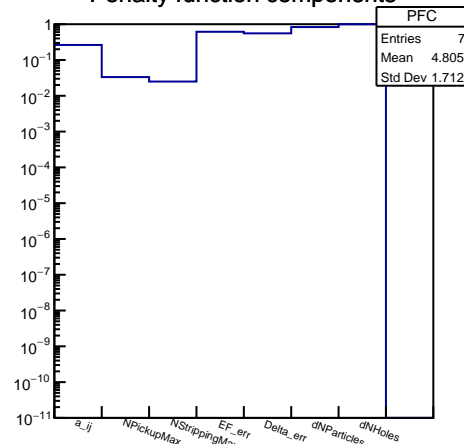
-4033.83 1d3/2 0.29 0.76

-11825.6 1d5/2 0.733167 0.470333

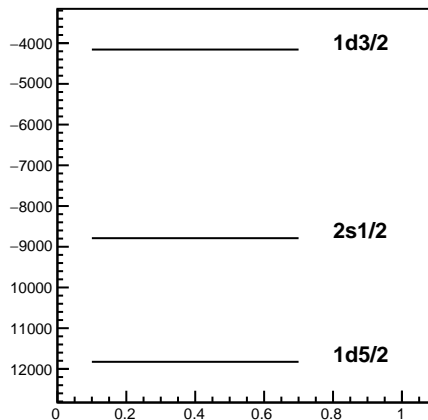
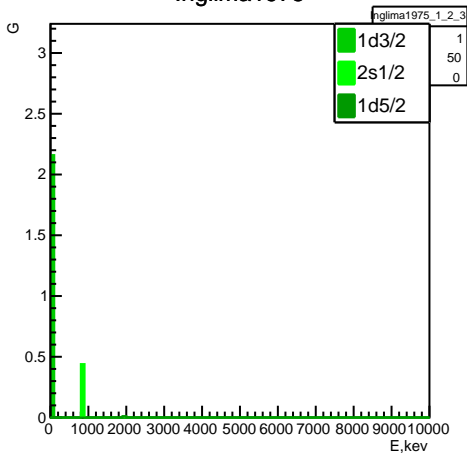
Kaschl1969



Penalty function components



Inglima1975



Experiment: Kaschl1969 (8) Inglima1975 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6095.74  $\pm$  1448.1 keV

$\Delta$ : -6056.12  $\pm$  3645.92 keV

penalty: 0.639442

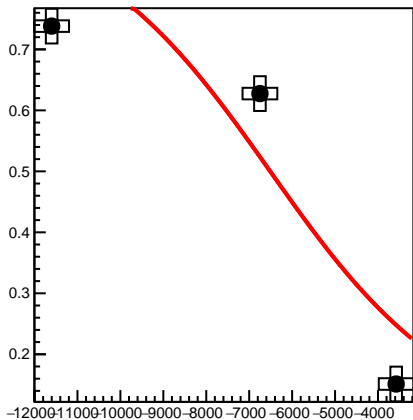
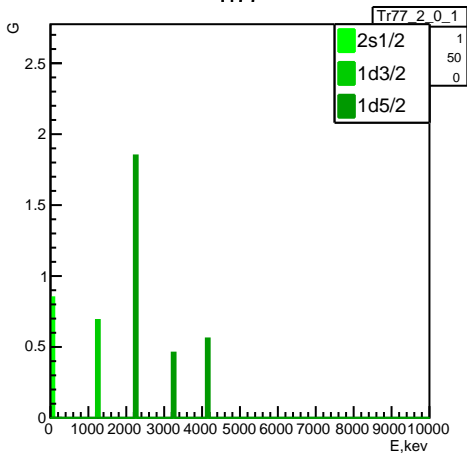
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-8789.49 2s1/2 0.795 1.03

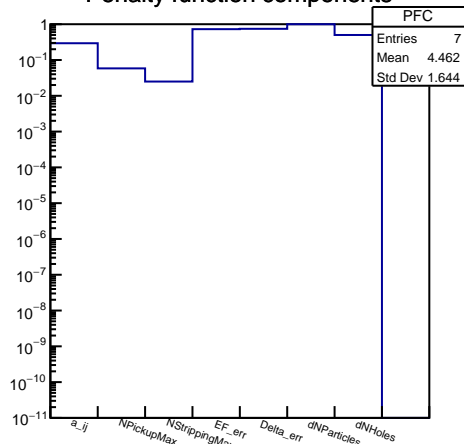
-4157.51 1d3/2 0.315 0.71

-11825.6 1d5/2 0.733167 0.470333

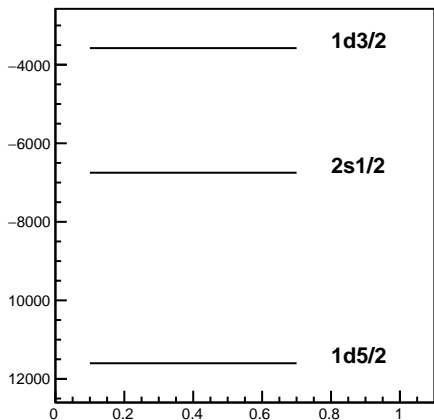
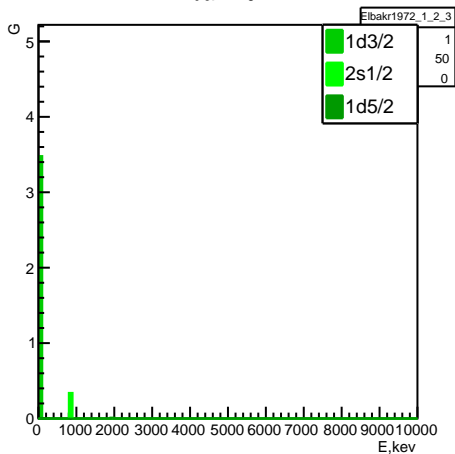
Tr77



Penalty function components



Elbkr1972



Experiment: Tr77 (5) Elbkr1972 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

 $E_F: -5610.62 \pm 1713.57 \text{ keV}$  $\Delta: -5026.46 \pm 4879.14 \text{ keV}$ 

penalty: 0.643883

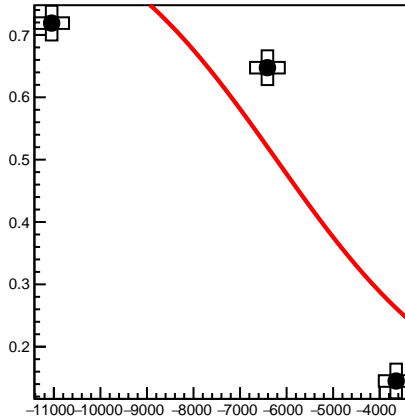
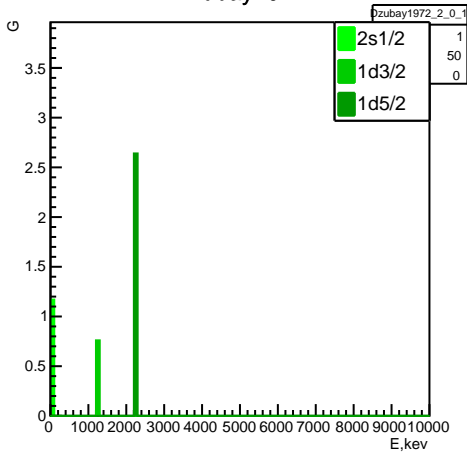
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$ 

-6749.96 2s1/2 0.6275 0.595

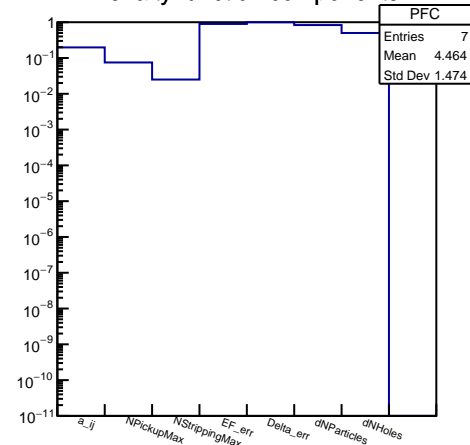
-3576.72 1d3/2 0.15125 1.0425

-11601.5 1d5/2 0.738167 0.480333

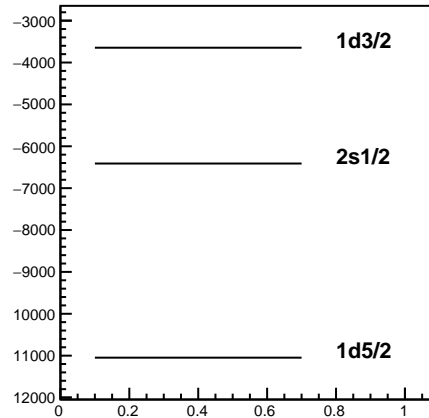
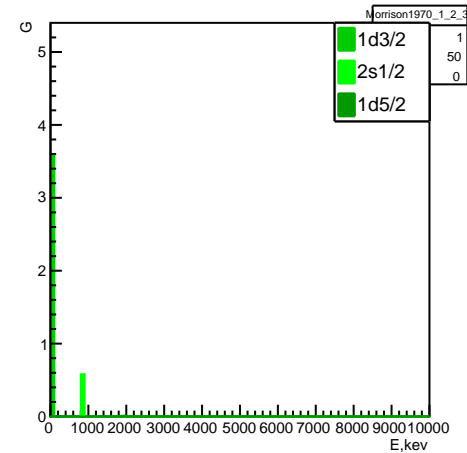
Dzubay1972



Penalty function components



Morrison1970



Experiment: Dzubay1972 (3) Morrison1970 (3)  
proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6217.91  $\pm$  2107.62 keV

$\Delta$ : -4746.55  $\pm$  6562.9 keV

penalty: 0.678004

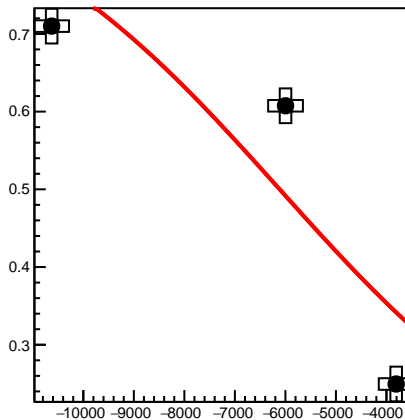
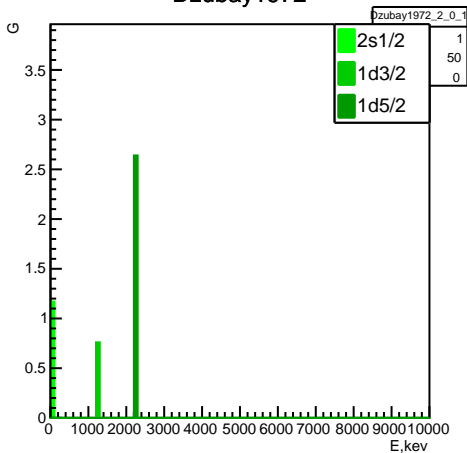
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-6411.85 2s1/2 0.6475 0.875

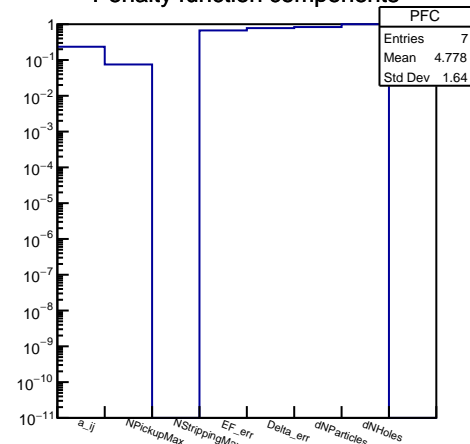
-3646.16 1d3/2 0.145 1.09

-11047.9 1d5/2 0.719 0.442

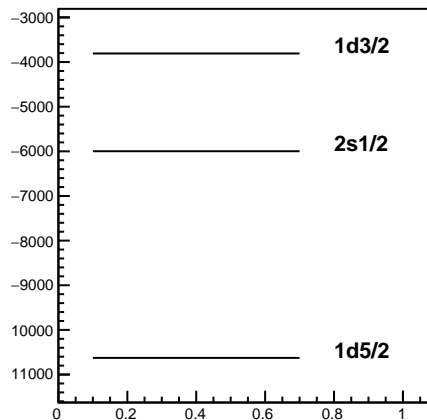
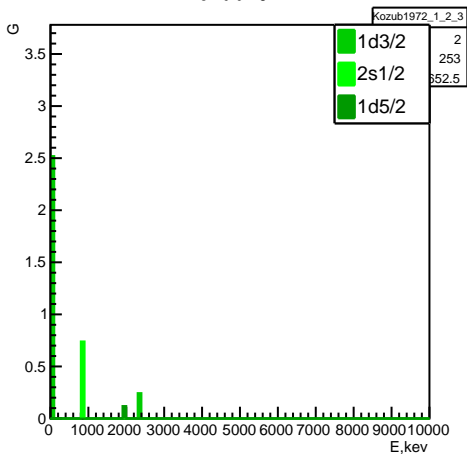
Dzubay1972



Penalty function components



Kozub1972



Experiment: Dzubay1972 (3) Kozub1972 (4)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6114.3 ± 1578.57 keV

Δ: -6908.25 ± 5106.74 keV

penalty: 0.690611

SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

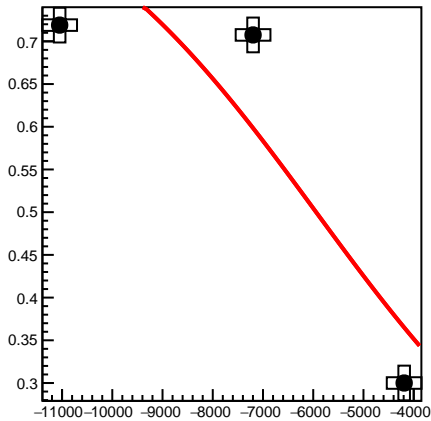
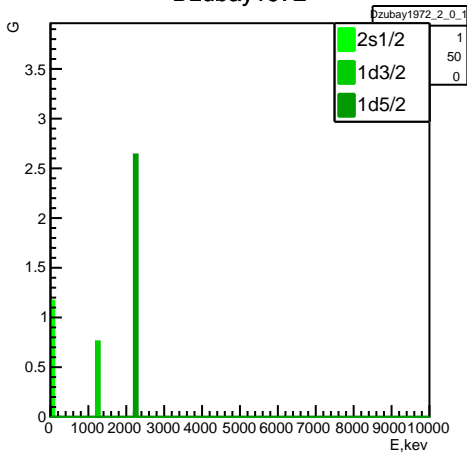
-5997.62 2s1/2 0.6075 0.955

-3808 1d3/2 0.2495 0.881

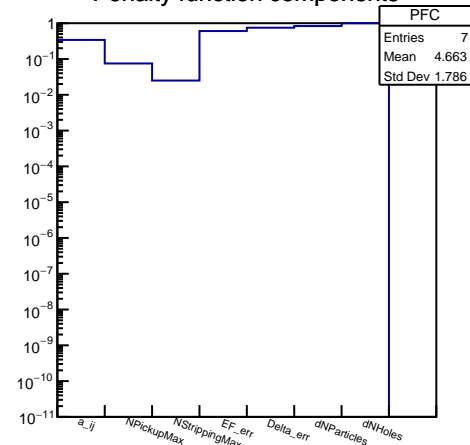
-10627 1d5/2 0.71 0.46



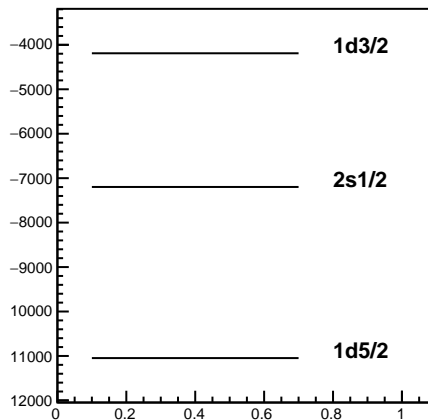
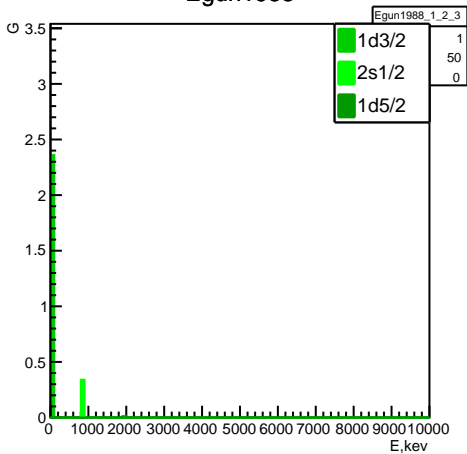
Dzubay1972



Penalty function components



Egun1988



Experiment: Dzubay1972 (3) Egun1988 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -5942.51  $\pm$  1423.08 keV

$\Delta$ : 6250.8  $\pm$  4915.99 keV

penalty: 0.697586

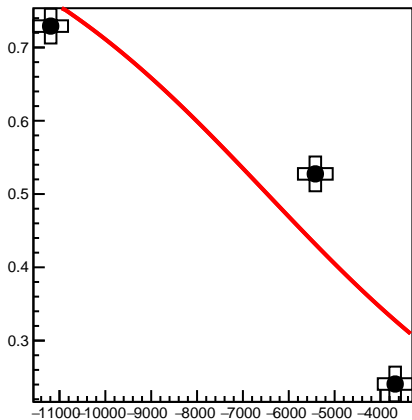
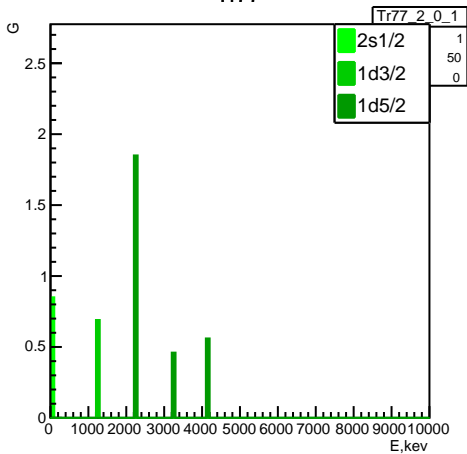
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-7197.79 2s1/2 0.7075 0.755

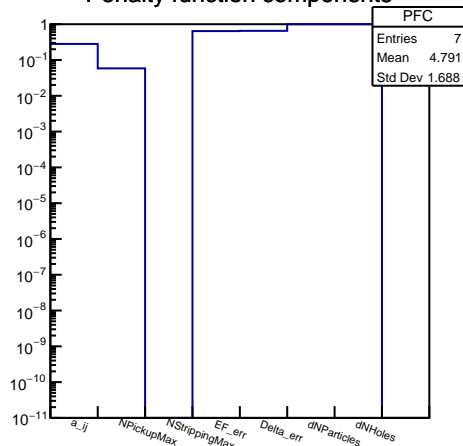
-4190.12 1d3/2 0.3 0.78

-11047.9 1d5/2 0.719 0.442

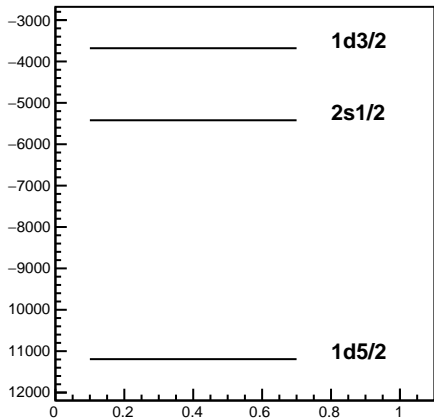
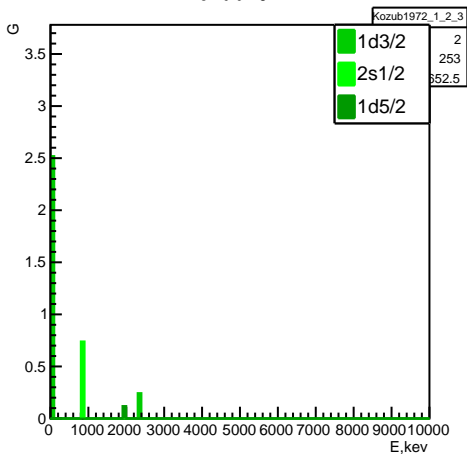
Tr77



Penalty function components



Kozub1972



Experiment: Tr77 (5) Kozub1972 (4)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6467.7 ± 1512.72 keV

Δ: 7578.98 ± 4282.4 keV

penalty: 0.698848

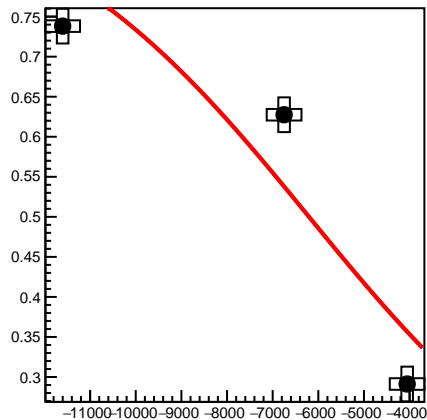
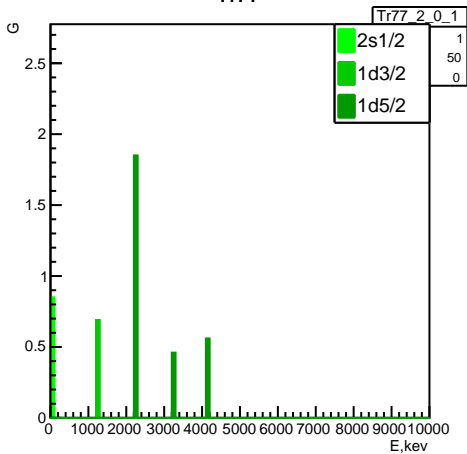
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$ 

-5420.9 2s1/2 0.5275 0.795

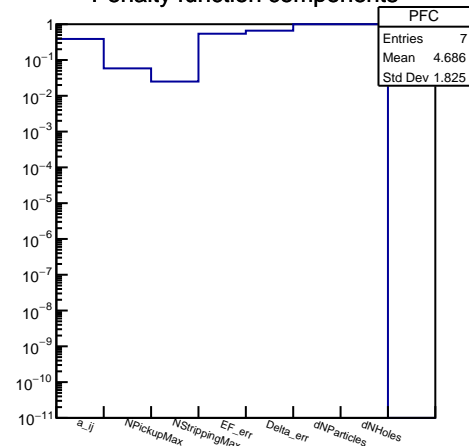
-3679.89 1d3/2 0.24075 0.8635

-11193 1d5/2 0.729167 0.498333

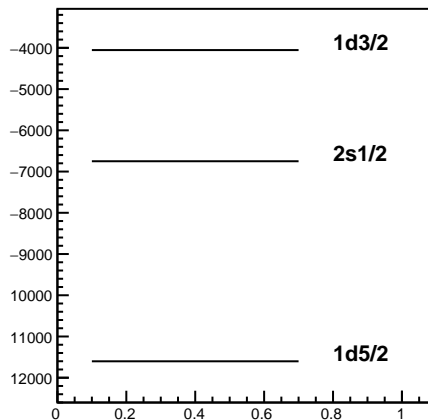
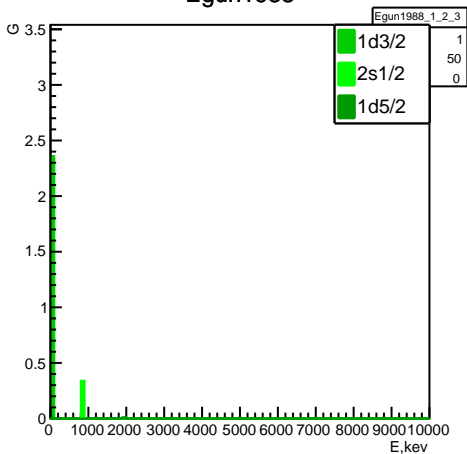
Tr77



Penalty function components



Egun1988



Experiment: Tr77 (5) Egun1988 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

 $E_F: -6203.71 \pm 1277.49$  keV $\Delta: 7181.52 \pm 4332.79$  keV

penalty: 0.70638

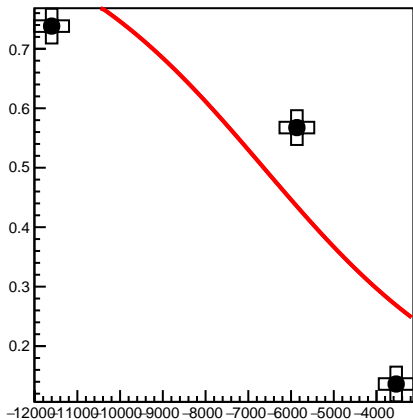
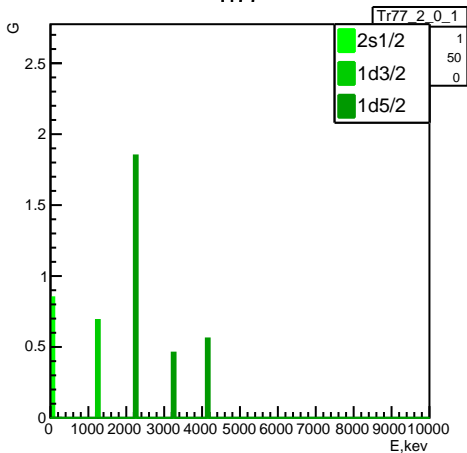
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$ 

-6749.96 2s1/2 0.6275 0.595

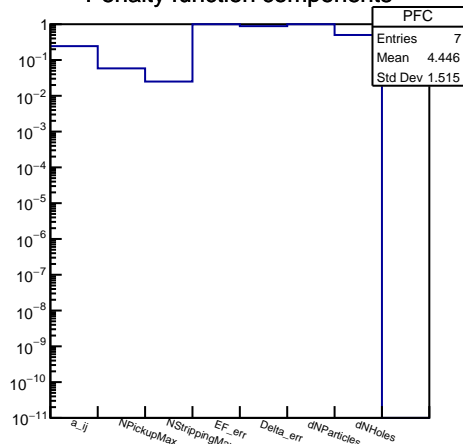
-4053.81 1d3/2 0.29125 0.7625

-11601.5 1d5/2 0.738167 0.480333

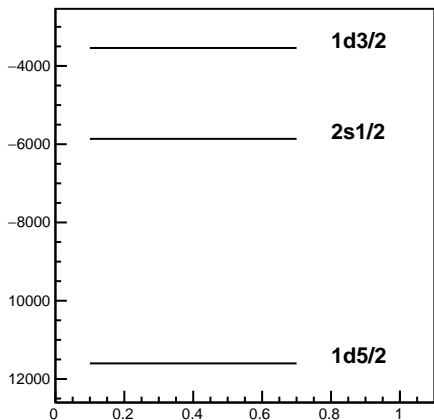
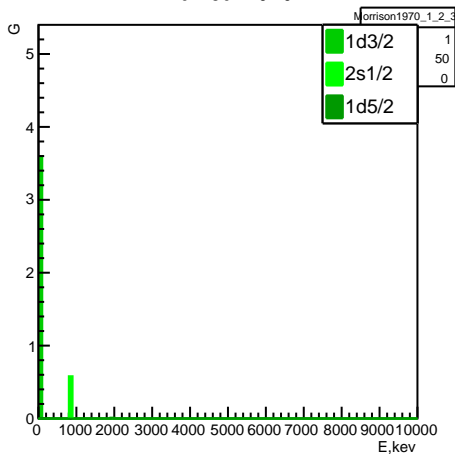
Tr77



Penalty function components



Morrison1970



Experiment: Tr77 (5) Morrison1970 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -6641.28  $\pm$  2355.88 keV

$\Delta$ : -5942.35  $\pm$  5795.94 keV

penalty: 0.713563

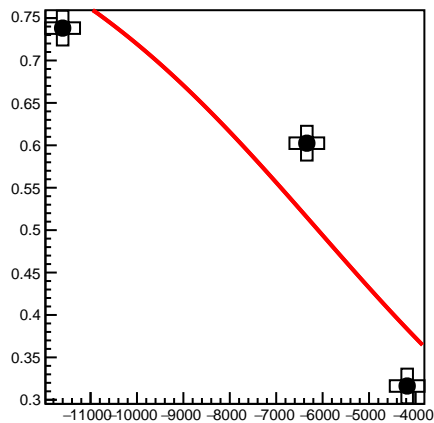
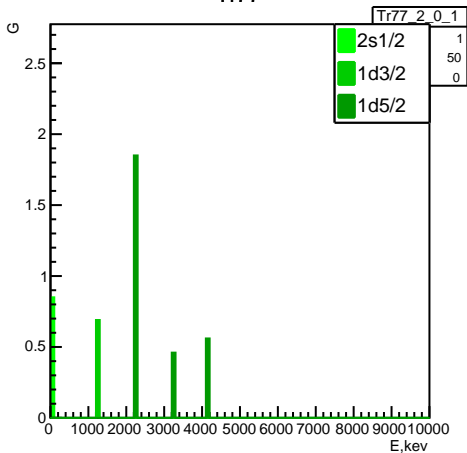
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-5863.3 2s1/2 0.5675 0.715

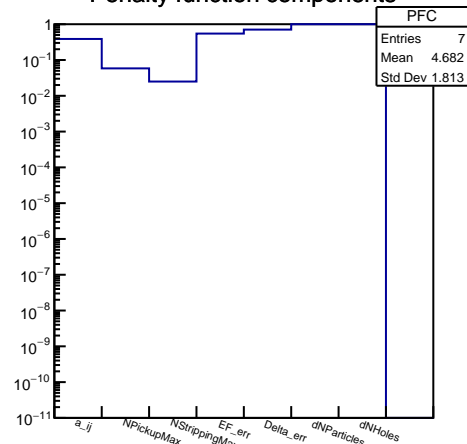
-3540.38 1d3/2 0.13625 1.0725

-11601.5 1d5/2 0.738167 0.480333

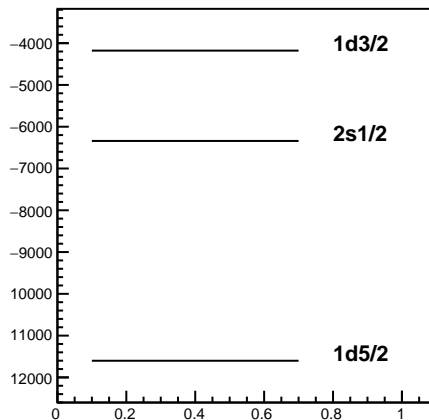
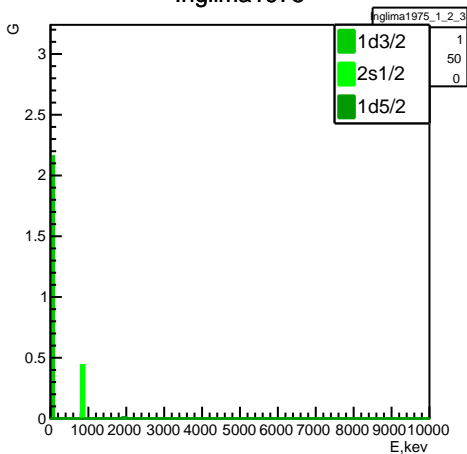
Tr77



Penalty function components



Inglima1975



Experiment: Tr77 (5) Inglima1975 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

$E_F$ : -6096.03  $\pm$  1289.56 keV

$\Delta$ : -7995.18  $\pm$  4639.49 keV

penalty: 0.716352

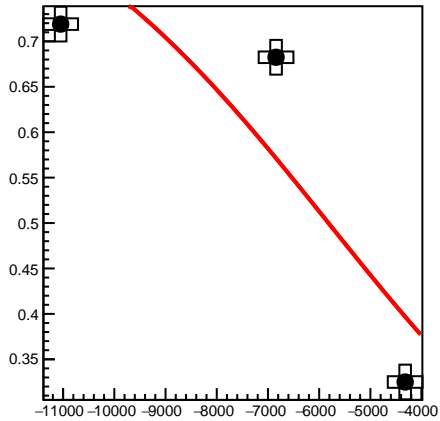
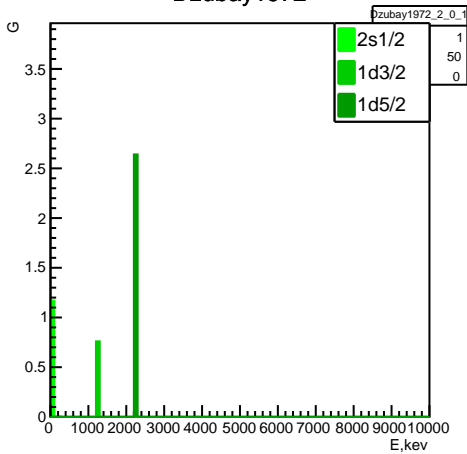
SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-6340.43 2s1/2 0.6025 0.645

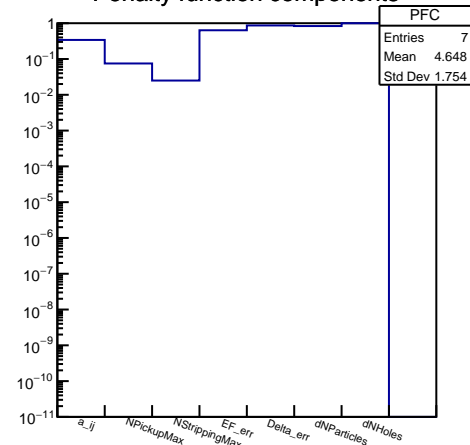
-4178.46 1d3/2 0.31625 0.7125

-11601.5 1d5/2 0.738167 0.480333

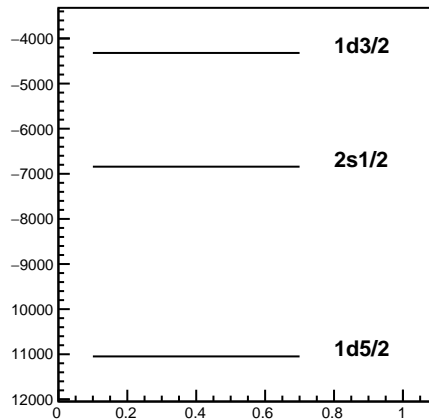
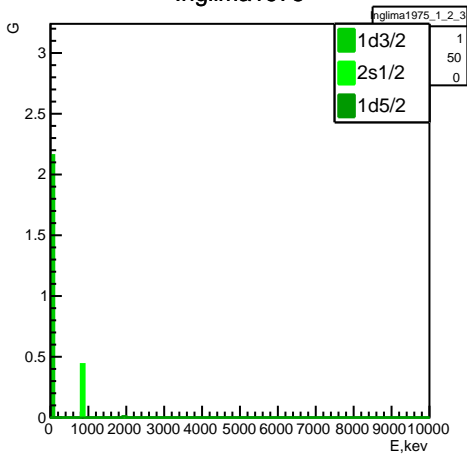
Dzubay1972



Penalty function components



Inglima1975



Experiment: Dzubay1972 (3) Inglima1975 (3)

proton transfer

p separation energy A:8863.17, A+1: 2277.5

E\_F: -5818.05  $\pm$  1496.46 keV

$\Delta$ : -7106.46  $\pm$  5679.07 keV

penalty: 0.725936

SPE,keV nlj OCC  $\frac{G^+ + G^-}{2J+1}$

-6841.84 2s1/2 0.6825 0.805

-4321.12 1d3/2 0.325 0.73

-11047.9 1d5/2 0.719 0.442