Decay channel analysis
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$^{24}$O excitation distributions: Input parent distr.

ABRASION-ABLATION $^{48}$Ca + Ni
Excit Energy Method $< 2 > \cdot < E >$ 10.00 dA MeV sigma 10.00
NP=84, SE DB0+Ca2 Density *auto* Geom.Corr. Off Tunig *auto* FisBar=1 Fac=1.00 Modes=1010 1000 010
More intense channel to get $^{24}\text{O}$ is $2\alpha + xn$
$^{48}\text{Ca} + \text{Ni} \rightarrow Z=8 \ (\text{left}) \ and \ Z=16 \ (\text{right})$
Excitation energy (method 3): \( Ex = \text{const}(dA) \) \( \text{sig}(Ex) = \text{const}(dA) \)
$^{48}$Ca+Ni $\rightarrow$ Z=8 (left) and Z=12 (right)

$\text{Ex}=10\text{MeV/dA, } \text{sig}(\text{Ex}) = 10\text{MeV/dA}$

To produce $^{24}$O

<table>
<thead>
<tr>
<th>Ex &amp; sig(Ex)</th>
<th>Alpha</th>
<th>n</th>
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<tr>
<td>13.4 &amp; 9.6</td>
<td>0.89</td>
<td>0.05</td>
</tr>
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<td>10 &amp; 10</td>
<td>0.26</td>
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Excitation energy

Widths versus mean values of excitation energy distributions obtained by matching EPAX values with the AA model.
Ex and \( \text{sig}(\text{Ex}) \) should be the function of \( dA \) in AA

What do we know from experiments?
- Decreasing the projectile velocity – increase of production cross-section of neutron-rich isotopes
- Target with large \( Z \) – increase of production cross-section of neutron-rich isotopes
- Low Exponential tail is due to dissipative processes

Why?
- Time of dissipation is increasing
- Touching Area + Time of dissipation is increasing due to target size

Touching area is \( \sim \) to square (Chord\_min)
Time of dissipation \( \sim \) to Chord\_max & beam velocity
But Chords are functions of \( dA \)!
Dissipation process contribution defines a way to produce nucleus

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Excitation energy distribution changes due to dissipation. What is shape??
Is there a correlation between the final fragment momentum distribution and prefragment excitation energy?
Or is there a correlation between the final fragment momentum distribution and the chain of decays?
It will be nice to measure ... Fragment Energy vs N(n) [and N(alpha)]

On different targets with the beam of different energies
2D “Cross section” plot -> file
Break-up channel

The limiting temperature $T_{\text{lim}}$ as a function of mass number on the $\beta$-stability line [De96].

$36S$ for $24O$?