Universal curve of $G_{\text{res}}$ – Formulae


\[
G_{\text{res}} (z) = \frac{0.94}{1+(z/2.70)^{0.82}} + 0.06
\]

with

\[
z = \sum_{\text{tot}} \left(E_{\text{res}} \right) \cdot y \cdot \sqrt{\frac{\Gamma_{\gamma}}{\Gamma}}
\]

where $y$ is given by:

<table>
<thead>
<tr>
<th>Geometry</th>
<th>$y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foils (thickness = $t$)</td>
<td>$y = 1.5 , t$</td>
</tr>
<tr>
<td>Wires (radius = $R$)</td>
<td>$y = 2 , R$</td>
</tr>
<tr>
<td>Spheres (radius = $R$)</td>
<td>$y = R$</td>
</tr>
<tr>
<td>Cylinders (radius = $R$; height = $h$) $(1 \leq h/R \leq 3)$</td>
<td>$y = 1.65 \frac{Rh}{R + h}$</td>
</tr>
</tbody>
</table>

$\Sigma_{\text{tot}}(E_{\text{res}}) = \text{total macroscopic cross-section at the resonance peak}$

$\Gamma_{\gamma} = \text{resonance width for the (n,}\gamma\text{) reaction}$

$\Gamma = \text{total resonance width (}\Gamma = \Gamma_{\gamma} + \Gamma_{n}\text{)}$

$\Gamma_{n} = \text{resonance width for the (n,n) reaction}.$