Preliminary $^{64}Zn(n,p)^{64}Cu$ and $^{47}Ti(n,p)^{47}Sc$ Data

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Experimental Setup – 03 Nov 2015

- Zinc
  - Thickness: 1.03 ± 0.01 mm
  - Diameter: 9.90 ± 0.15 mm
  - Weight: 0.5375 ± 0.0001 g
- Indium
  - Thickness: 0.48 ± 0.02 mm
  - Diameter: 9.77 ± 0.12 mm
  - Weight: 0.2475 ± 0.0001 g
- Beam On: 2:13:16 PM
- Beam Off: 5:13:16 PM
- Start of Counting: 5:43:01 PM

Polyethylene

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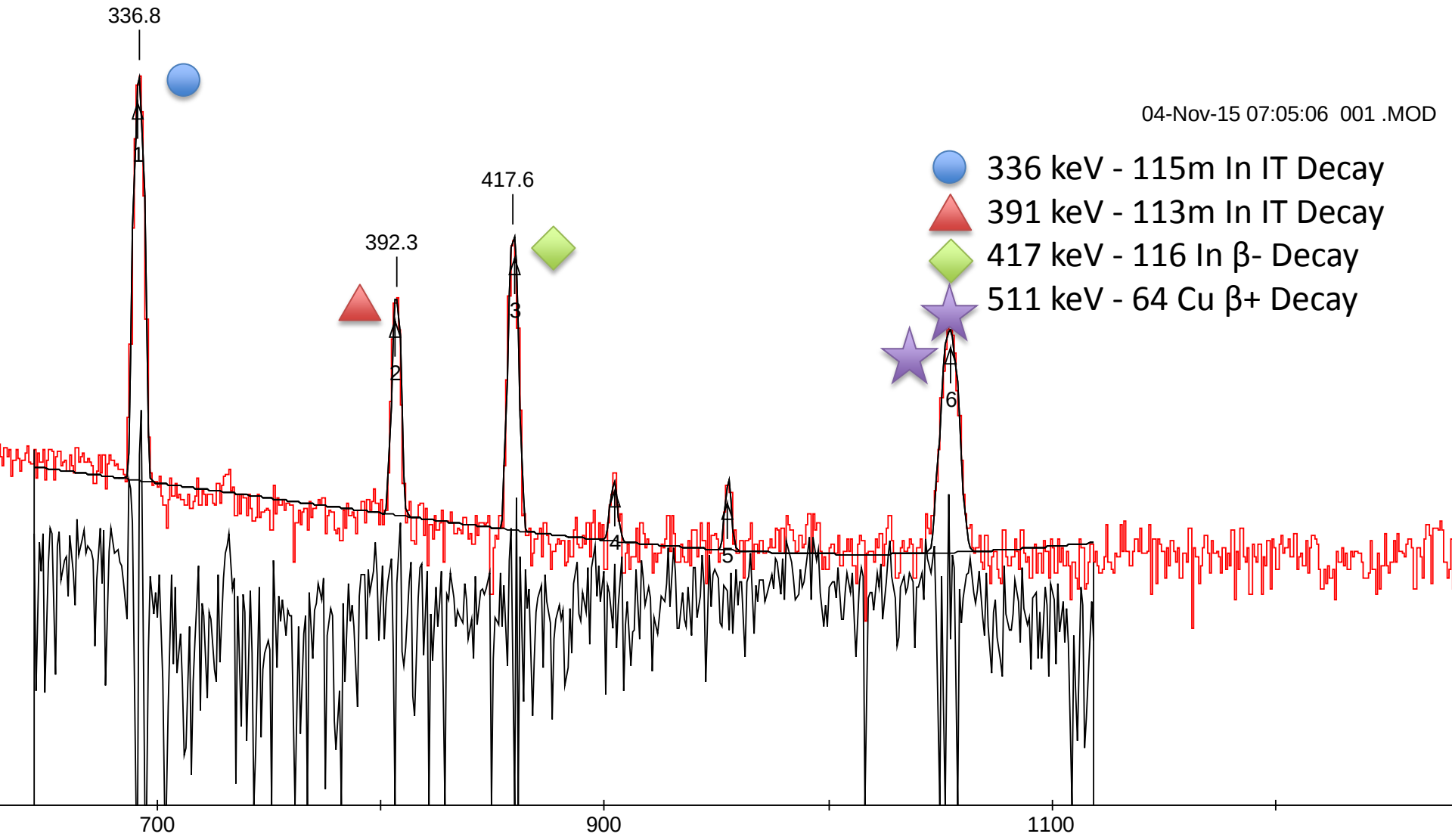
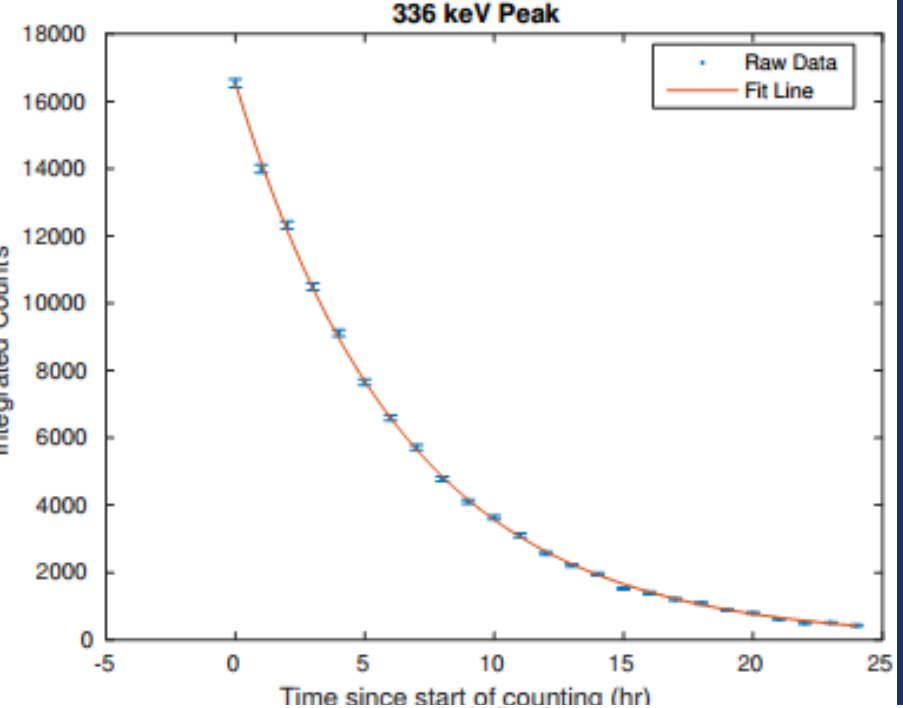
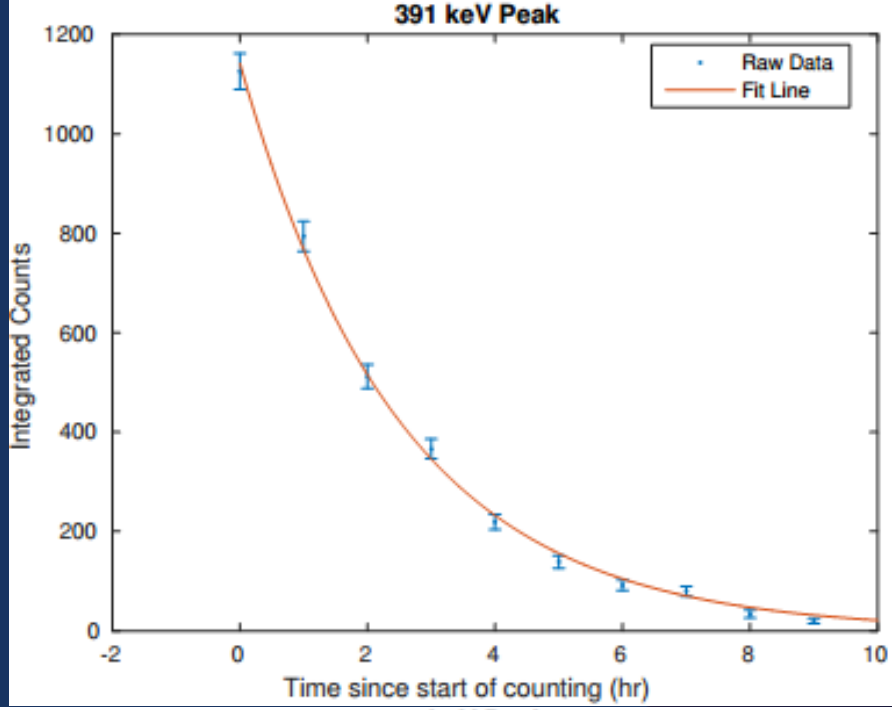
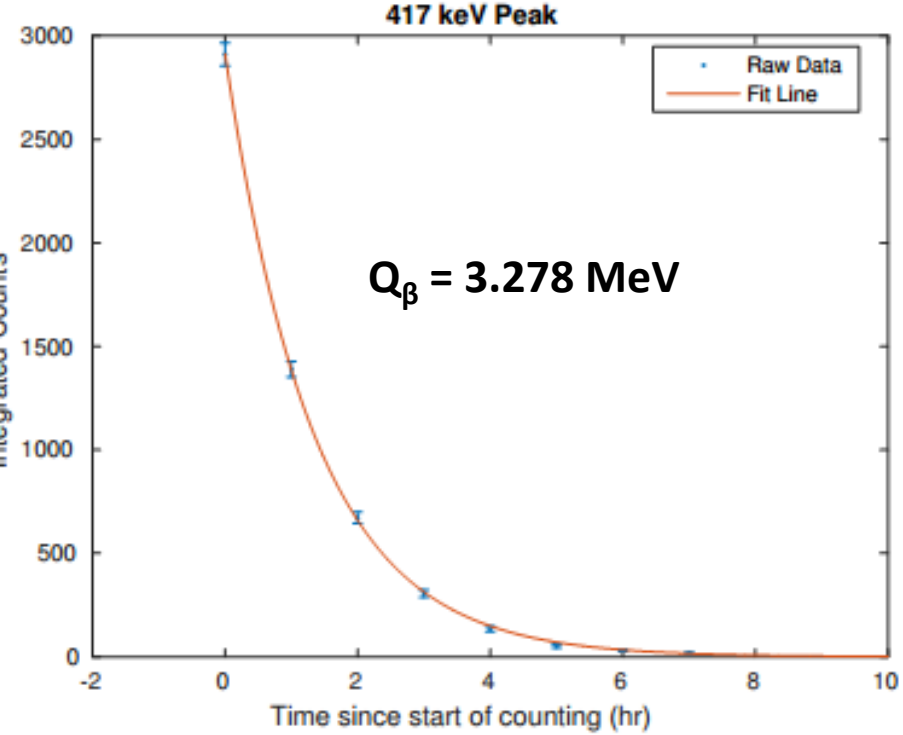
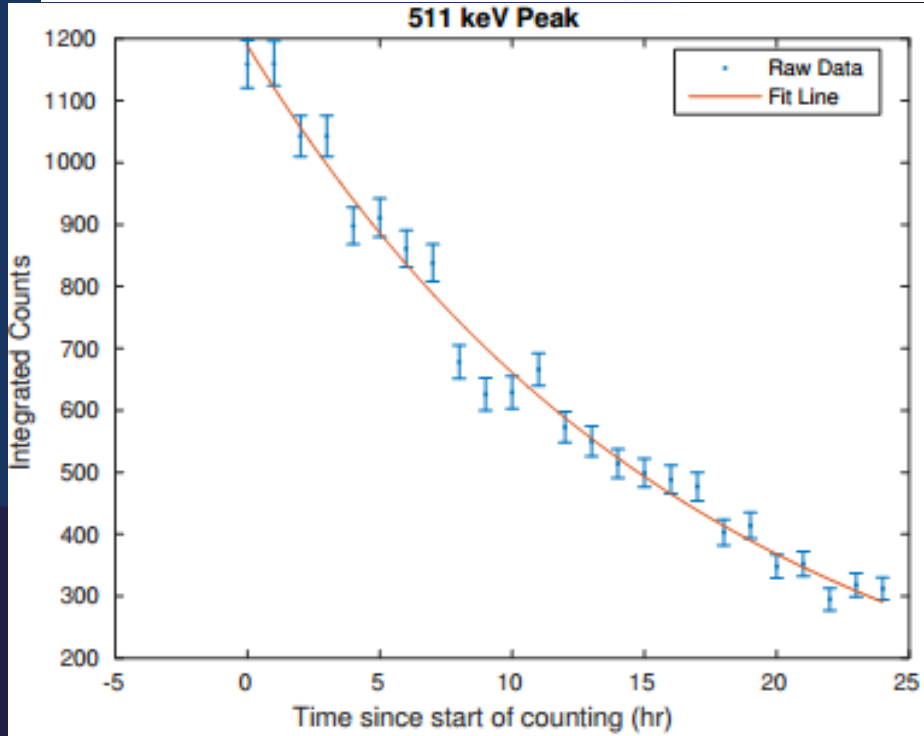

336.8
392.3
417.6
1
2
3
4
5
6
04-Nov-15 07:05:06 001 .MOD
336 keV - 115m In IT Decay
391 keV - 113m In IT Decay
417 keV - 116 In β- Decay
511 keV - 64 Cu β+ Decay
700
900
1100





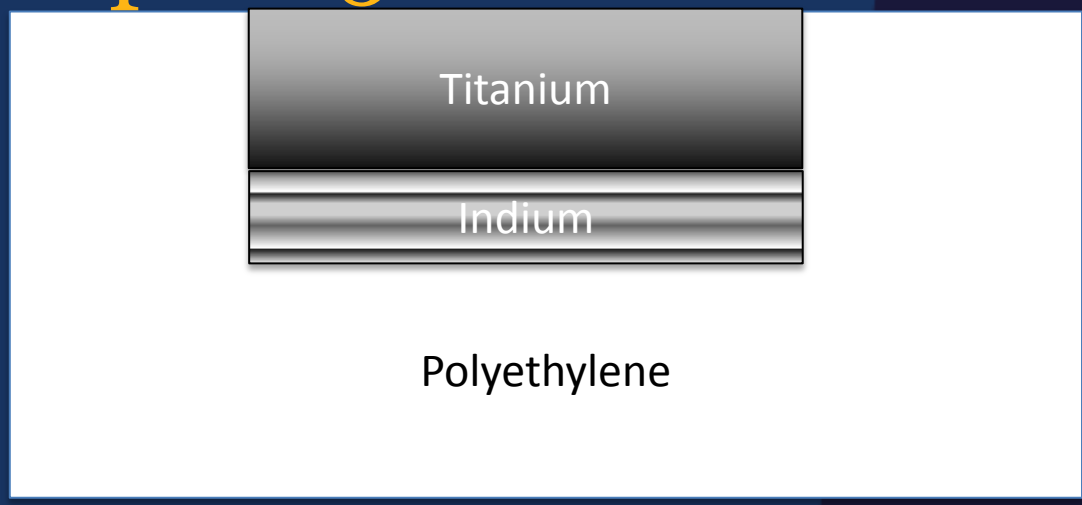


$Q_\beta = 3.278$ MeV



Experimental Setup – 25 Feb 2016

- Titanium
  - Thickness: 1.03 ± 0.01 mm
  - Diameter: 9.9034± 0.15 mm
  - Weight: 0.337 ± 0.0001 g
- Indium
  - Thickness: 0.48 ± 0.02 mm
  - Diameter: 10.136 ± 0.12 mm
  - Weight: 0.2475 ± 0.0001 g
- Beam On: 1:40:35 PM
- Beam Off: 4:57:52 PM
- Start of Counting: 5:47:59 PM



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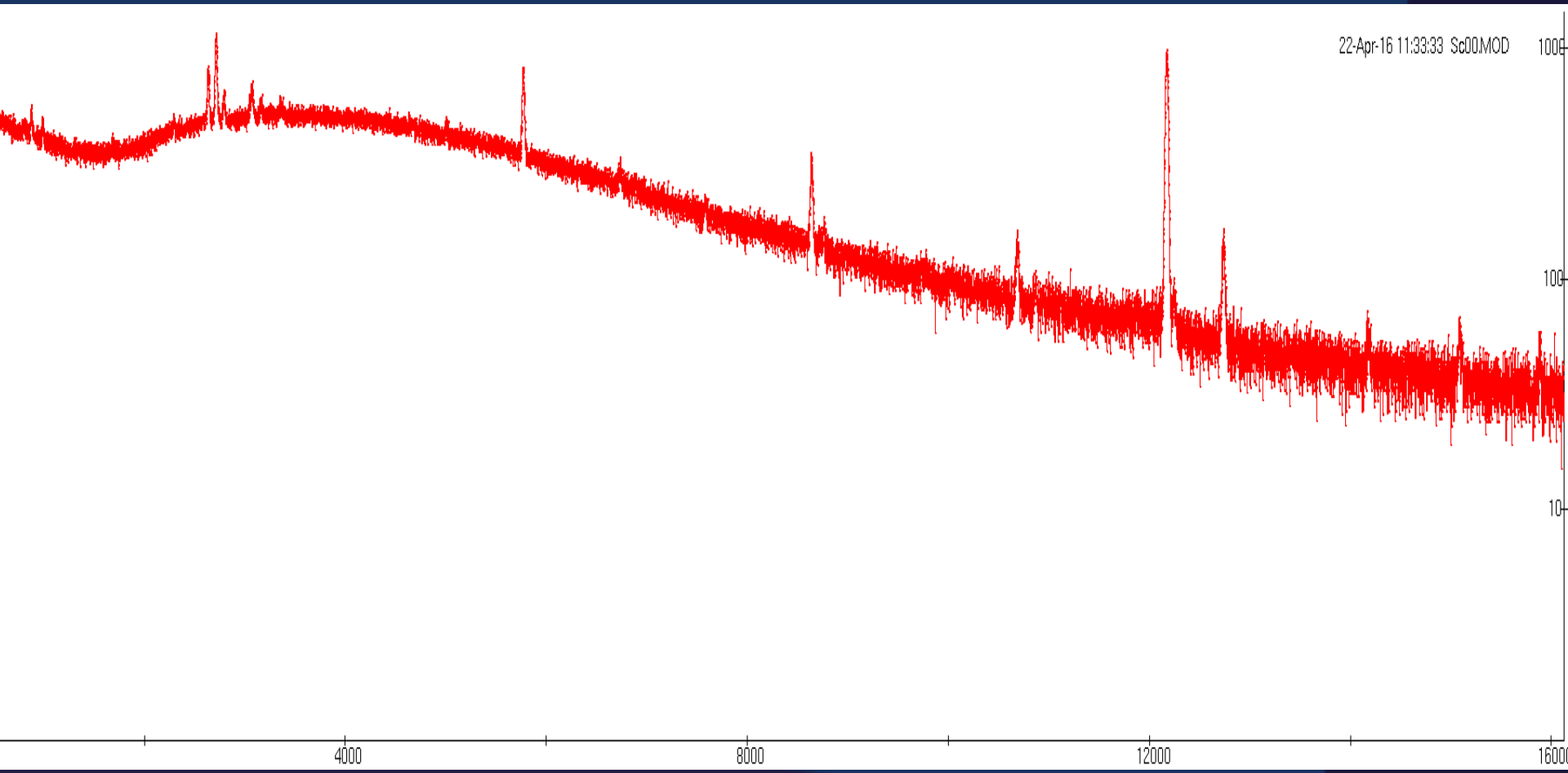

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Model

$$N_{obs_2} = \frac{R_2}{\lambda_2}(1 - e^{-\lambda_2 t_1})e^{-\lambda_2 t_2}(e^{-\lambda_2 t_3} - 1)B_2\epsilon_{In}$$

$$\sigma_1 = \sigma_2 \left(\frac{N_{obs_1}}{N_{obs_2}}\right)\left(\frac{\lambda_1}{\lambda_2}\right)\left(\frac{N_{02}}{N_{01}}\right)\left(\frac{B_2}{B_1}\right)\left(\frac{\epsilon_{In}}{\epsilon_{Sc}}\right) \times \frac{(1 - e^{-\lambda_2 t_1})e^{-\lambda_2 t_2}(e^{-\lambda_2 t_3} - 1)}{(1 - e^{-\lambda_1 t_1})e^{-\lambda_1 t_2}(e^{-\lambda_1 t_3} - 1)}$$

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