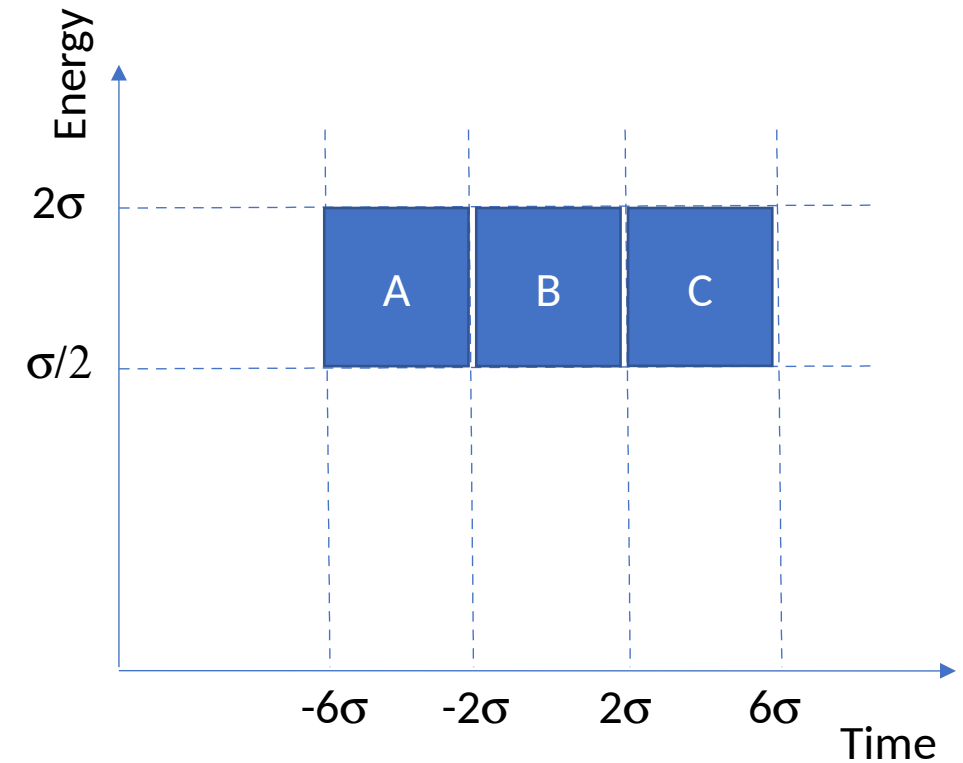


- Using our standard process to define energy and time cuts for good Mott events (Region B), Daniel will also tally “before” events (Region A) and “after” events (Region C), corresponding to equal duration of time and exact same energies, corresponding to $(N_A^+, N_A^-, N_B^+, N_B^-, N_C^+, N_C^-)$.
- Daniel will compute 8 quantities for each run which will be statistically combined for each foil and used as we wish.

| Description | Quantity |
|---------------------------|--|
| Region A total events | $N_A = N_A^+ + N_A^-$ |
| Region B total events | $N_B = N_B^+ + N_B^-$ |
| Region C total events | $N_C = N_C^+ + N_C^-$ |
| Dilution Number | $\langle DN \rangle = (N_A + N_C) / 2N_B$ |
| Region A asymmetry | $\epsilon_A = (N_A^+ - N_A^-) / (N_A^+ + N_A^-)$ |
| Region B asymmetry | $\epsilon_B = (N_B^+ - N_B^-) / (N_B^+ + N_B^-)$ |
| Region C asymmetry | $\epsilon_C = (N_C^+ - N_C^-) / (N_C^+ + N_C^-)$ |
| Dilution Asymmetry | $\langle DA \rangle = 1 - (\epsilon_{ABC} / \epsilon_B)$ |



$$\langle DA \rangle = \text{Dilution Asymmetry [\%]} = (1 - (\epsilon_{ABC} / \epsilon_B)) * 100$$

$$\langle DN \rangle = \text{Dilution Number [\%]} = ((N_A + N_C) / 2N_B) * 100$$

| Run I, Up/Down Physics Asymmetry | | | ToF Window : [-2 : +2 sigma] | | | | | |
|----------------------------------|----------------|----------------|------------------------------|--------|----------------------|-------|-------|-------|
| | | | Dilution Asymmetry <DA> | | Dilution Number <DN> | | | |
| Threshold | Foil | Thickness [nm] | Asym (Dilution) | dAsym | LEFT | RIGHT | UP | DOWN |
| Low | 15 | 1000 | 0.1015 | 0.0035 | 1.721 | 1.467 | 1.526 | 1.788 |
| Low | 3 | 870 | 0.1576 | 0.0031 | 1.752 | 1.441 | 1.452 | 1.650 |
| Low | 4 | 750 | 0.0520 | 0.0033 | 1.597 | 1.449 | 1.292 | 1.825 |
| Low | 2 | 625 | 0.1263 | 0.0032 | 1.539 | 1.363 | 1.274 | 1.525 |
| Low | 5 | 500 | -0.0401 | 0.0028 | 1.485 | 1.451 | 1.217 | 1.806 |
| Low | 14 | 350 | 0.0761 | 0.0033 | 1.418 | 1.405 | 1.370 | 1.808 |
| High | 8 | 350 | 0.0426 | 0.0024 | 1.516 | 1.618 | 1.518 | 1.999 |
| High | 1 | 225 | -0.0326 | 0.0020 | 1.444 | 1.581 | 1.341 | 1.848 |
| High | 12 | 50 | 0.0051 | 0.0031 | 1.445 | 1.659 | 1.439 | 1.840 |
| High | 13 | 50 | 0.0280 | 0.0030 | 1.488 | 1.616 | 1.452 | 1.876 |
| Low | 15 – stability | 1000 | 0.0177 | 0.0027 | 1.636 | 1.534 | 1.538 | 1.853 |
| High | 15 – stability | 1000 | 0.0046 | 0.0019 | 1.834 | 1.750 | 1.851 | 2.136 |

| Run II, Left/Right Physics Asymmetry | | ToF Window : [-2 : +2 sigma] | | | | | |
|--------------------------------------|----------------|------------------------------|--------|----------------------|-------|-------|-------|
| | | Dilution Asymmetry <DA> | | Dilution Number <DN> | | | |
| Foil | Thickness [nm] | Asym (Dilution) | dAsym | LEFT | RIGHT | UP | DOWN |
| 15 | 1000 | 0.0905 | 0.0026 | 1.708 | 1.795 | 1.762 | 1.773 |
| 3 | 870 | 0.0127 | 0.0033 | 1.684 | 1.603 | 1.634 | 1.416 |
| 4 | 750 | 0.0190 | 0.0033 | 1.728 | 1.741 | 1.507 | 1.790 |
| 2 | 625 | -0.0207 | 0.0021 | 1.649 | 1.608 | 1.477 | 1.321 |
| 5 | 500 | 0.1317 | 0.0029 | 1.671 | 1.834 | 1.587 | 1.879 |
| 14 | 350 | -0.0541 | 0.0030 | 1.692 | 1.681 | 1.705 | 1.676 |
| 8 | 350 | 0.0139 | 0.0029 | 1.736 | 1.714 | 1.821 | 1.606 |
| 1 | 225 | 0.0345 | 0.0026 | 1.572 | 1.619 | 1.454 | 1.384 |
| 12 | 50 | 0.0211 | 0.0030 | 1.199 | 1.400 | 1.529 | 1.361 |
| 13 | 50 | -0.0274 | 0.0031 | 1.060 | 1.299 | 1.588 | 1.274 |
| 15 – stability | 1000 | 0.0201 | 0.0018 | 1.667 | 1.805 | 1.791 | 1.789 |