

Trigger settings for solar WIMPs

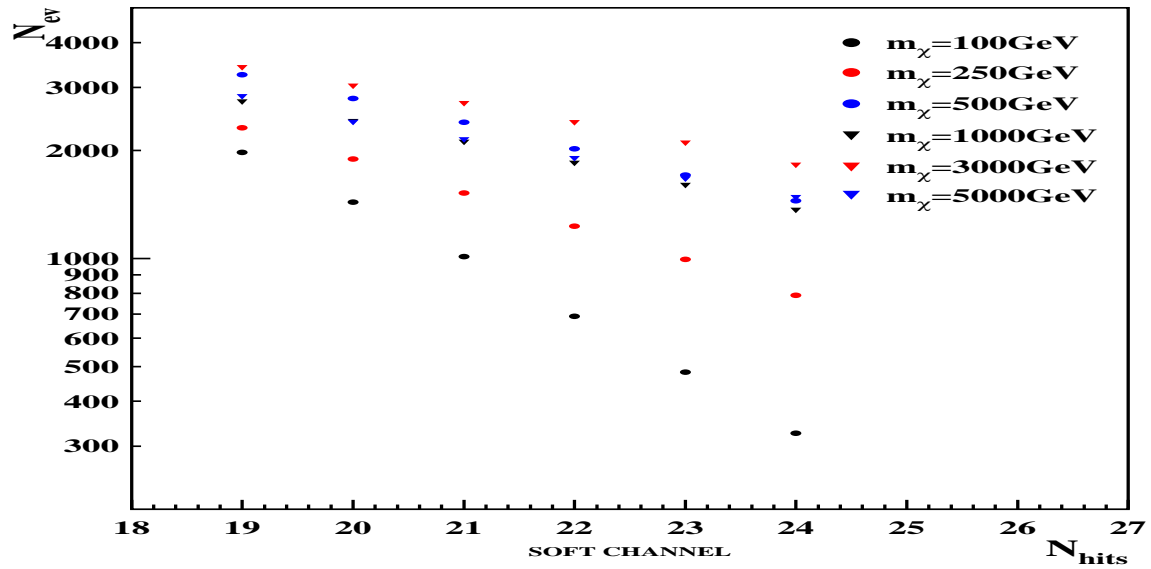
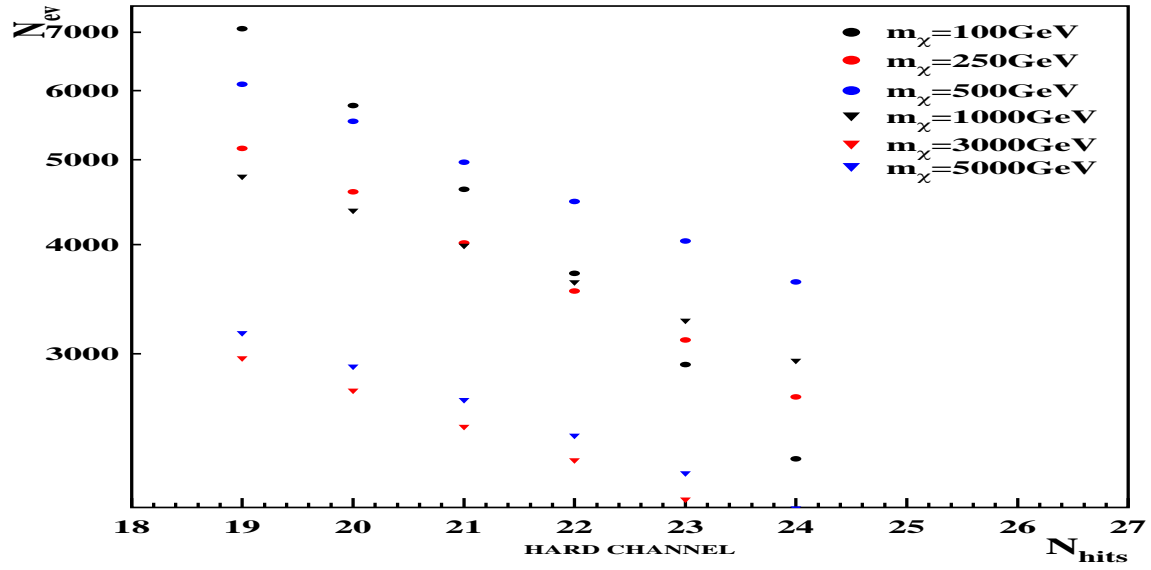
WIMPs muon sample

hard annihilation channel: $\chi\chi \rightarrow W^+W^-$

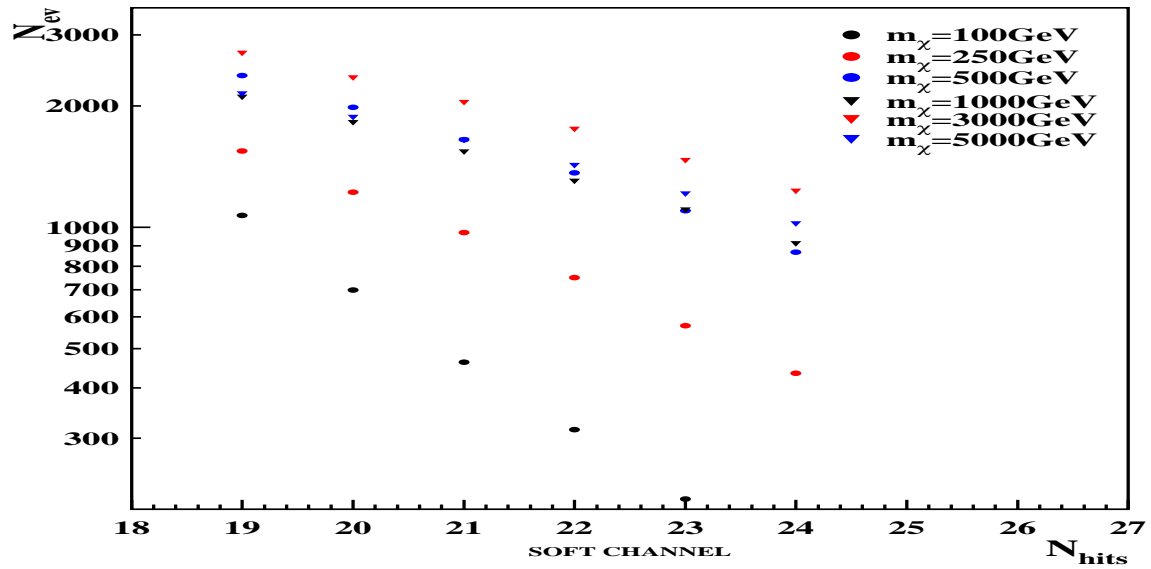
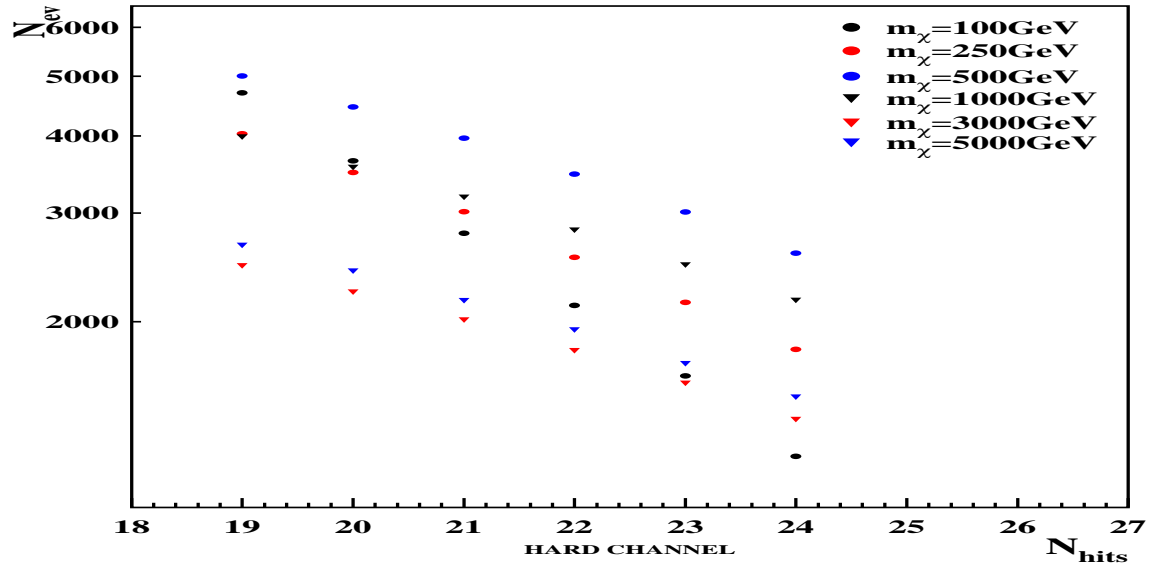
soft annihilation channel: $\chi\chi \rightarrow b\bar{b}$

MAM ice model

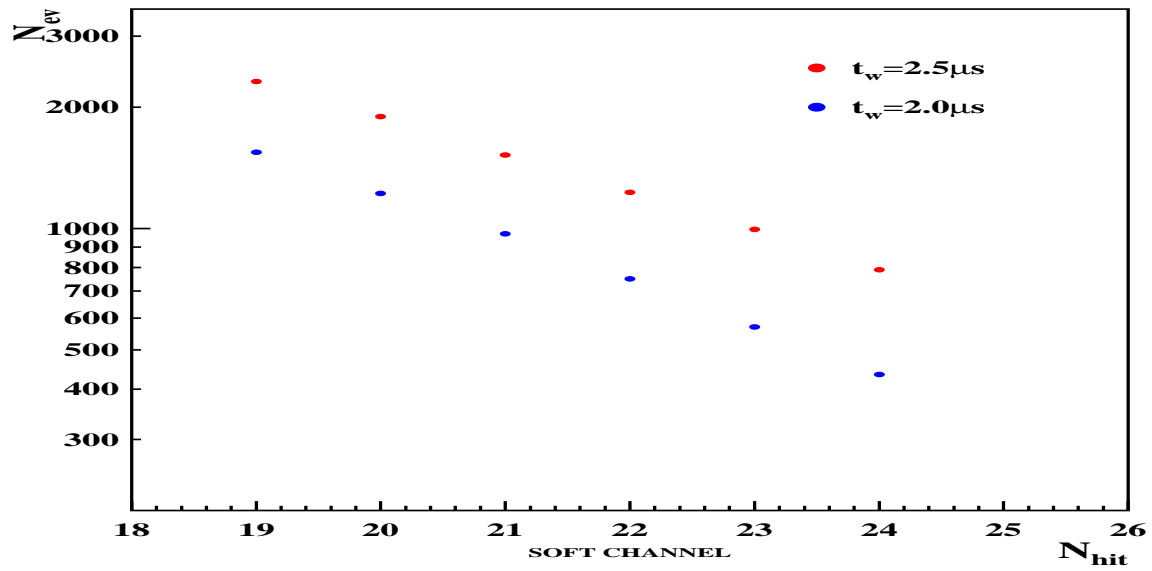
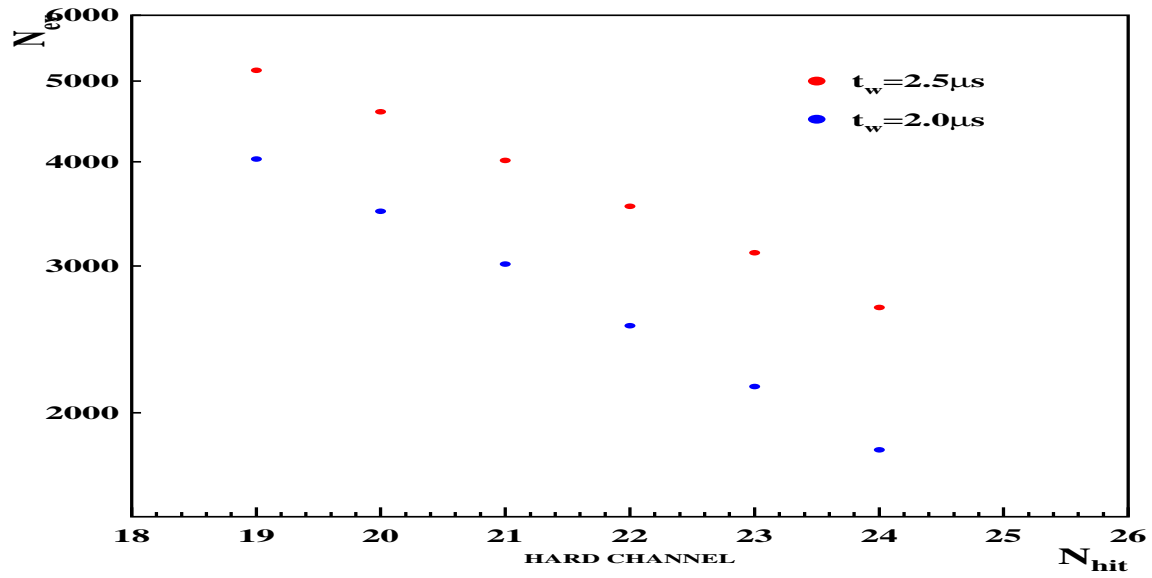
$$t_w = 2.5\mu s$$



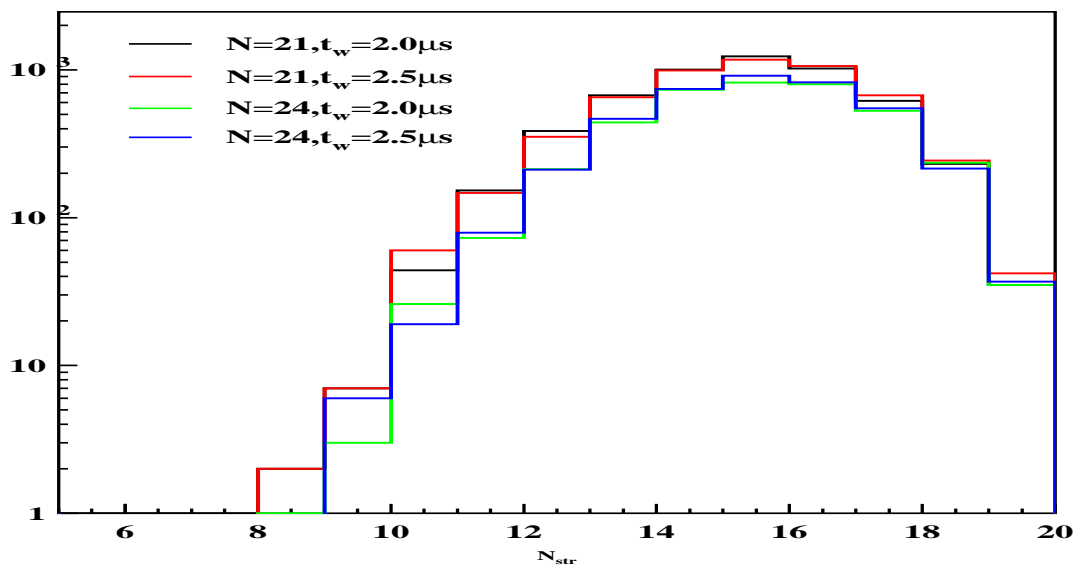
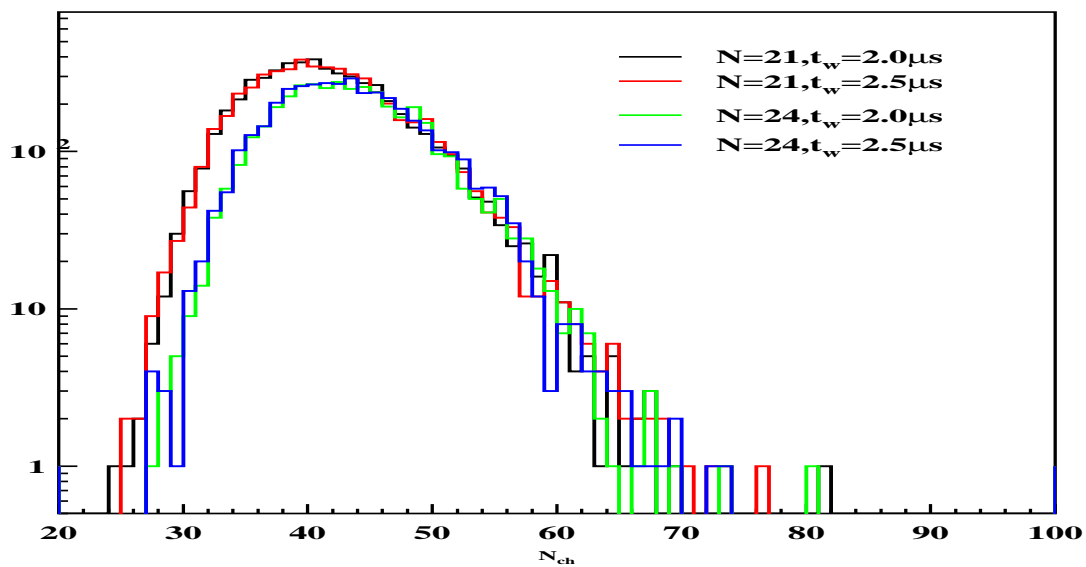
$$t_w = 2.0\mu s$$



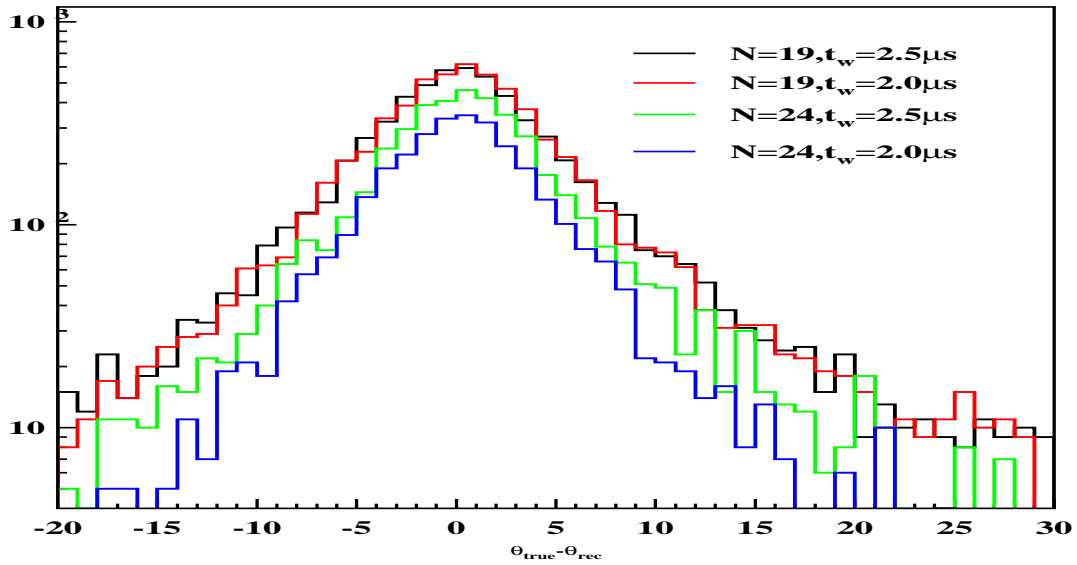
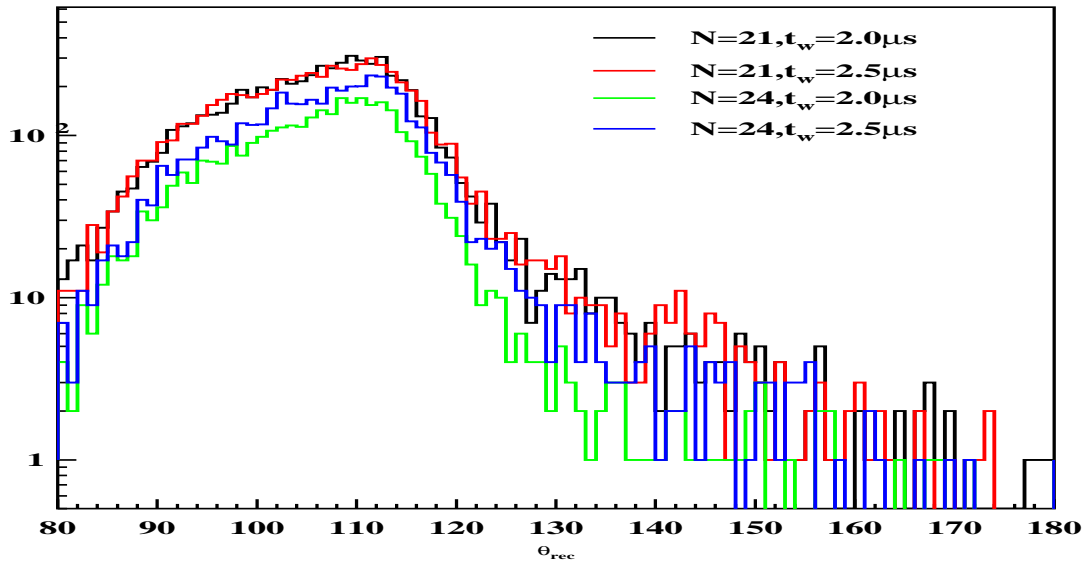
$$m_\chi = 250\text{GeV}$$



Trigger level



Level 2



Conclusions:

- Reducing of the number of modules required for the trigger decision gives a gain in the solar WIMPs rate of about 20% ($m_\chi > 100\text{GeV}$) and $\sim 150\%$ ($m_\chi \leq 100\text{GeV}$) at the trigger level for each step.
- Reducing the trigger window from $2.5\mu\text{s}$ to $2.0\mu\text{s}$ leads to the rate decreasing by the factor of 1.5 ($m_\chi > 100\text{GeV}$) and factor of 2 for $m_\chi \leq 100\text{GeV}$ at the trigger level.
- To reproduce the present passing rate for the solar WIMPs in the case of $2.0\mu\text{s}$ trigger window, the multiplicity should be set below 22 hit modules.
- Basic distributions at the trigger level and after level 2 processing for different trigger setting do not deviate significantly from the present trigger settings.
- The passing rates after the level 2 processing for all trigger settings coincide with a good agreement (within few percents).