

Nikhef 'things' & Easter

- Renovation
 - What are your ideas about **common areas?**
 - <https://www.nikhef.nl/news/nikhef-gaat-renoveren-ontwerpteam-aan-de-slag/>
- Girlsday
- NOR & NOROV
 - If there are any issues you want us to discuss with the Nikhef management / NWO-i? Please let me know!



Check check double check & correct

- Flux
 - Cosm neutrinos: correct flux from LOI
$$\Phi(E_\nu) = 1.2 \times 10^{-8} \cdot \left(\frac{E_\nu}{\text{GeV}} \right)^{-2} \cdot \exp \left(-\frac{E_\nu}{3 \text{PeV}} \right) \text{ GeV}^{-1} \text{ cm}^{-2} \text{ s}^{-1} \text{ sr}^{-1}$$
 - Atm neutrinos: Honda flux (is implemented in weights)
- Weights & ratio [nu : anu]
 - Cosm neutrinos: ratio nu - anu is 1 - 1
 - Atm neutrinos: ratio nu - anu is 4 - 1
- Correct LOI table! Tab.3 = cascade channel, Tab.4 = track channel
- Years & blocks
 - MC output: 1 building block & 1 year
 - LOI: 2 building blocks & 5 years
- Besides CC also NC

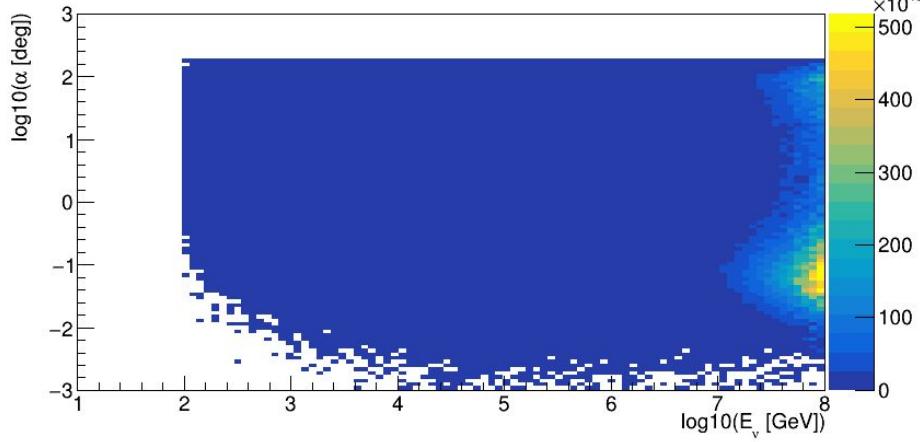
Check numbers LOI / my plots

		MC output	2 blocks & 5yrs	NC & CC together	LOI 2016
atm	numuCC	67176	879 412	9.22e5	1.6e6
atm	anumuCC	20764			
atm	numuNC	3524			
atm	anumuNC	818			
cosm	numuCC	98	1748	1.85e3	1.9e3
cosm	anumuCC	77			
cosm	numuNC	6			
cosm	anumuNC	4			

Function to multiply TH2D with func

- **TH2D** => Angular resolution without any flux applied
- **Func** => Formula for neutrino flux

Angular resolution, no flux



$$\Phi(E_\nu) = 1.2 \times 10^{-8} \cdot \left(\frac{E_\nu}{\text{GeV}}\right)^{-2} \cdot \exp\left(-\frac{E_\nu}{3 \text{PeV}}\right) \text{ GeV}^{-1} \text{ cm}^{-2} \text{ s}^{-1} \text{ sr}^{-1}$$

→ based on IceCube signal [1] that originates from isotropic, flavour-symmetric neutrino flux

$$\Phi(E_\nu) = 4.11 \times 10^{-6} \cdot \left(\frac{E_\nu}{\text{GeV}}\right)^{-2.46} \cdot \exp\left(-\frac{E_\nu}{3 \text{PeV}}\right) \text{ GeV}^{-1} \text{ cm}^{-2} \text{ s}^{-1} \text{ sr}^{-1}$$

→ “To check the robustness of our results with respect to the diffuse neutrino flux assumed”
also flux based on more recent IceCube parameterized results [2,3]