

Code Updates

by

Brendan C. Lyons¹

¹General Atomics

Presented at the
M3D-C1 Developers and Users Meeting

June 1st, 2020

Minor Changes Related to Pellets

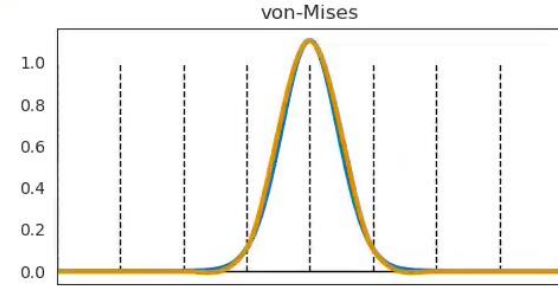
- **Added new ipellet=14**

- Distribution is a blend of old von-Mises and new Cauchy

$$(1 - \alpha) \exp \left[-\frac{1 - \cos(\varphi - \varphi_p)}{\gamma^2} \right] + \alpha \frac{\cosh \gamma - \cos \varphi_p}{\cosh \gamma - \cos(\varphi - \varphi_p)}$$

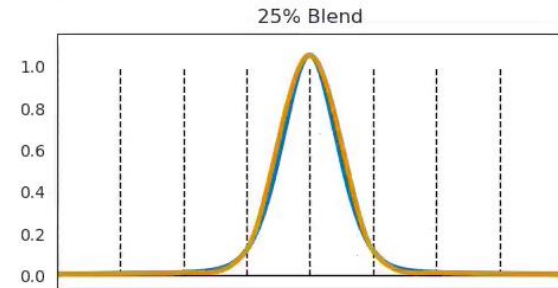
- α set as cauchy_fraction

- **Pellet out-of-bounds monitor now works on $[0, 2\pi)$, consistent with M3D-C1 toroidal angle**

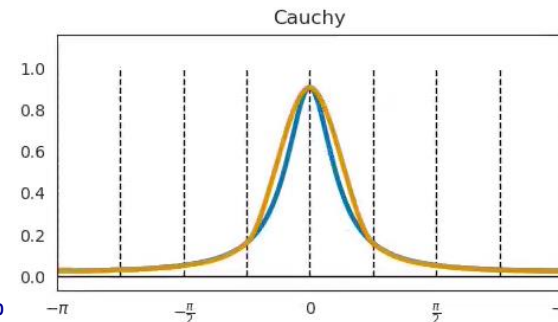


Distribution
Hermite cubic fit

von Mises gets very small and can overshoot



Blend may provide best of both worlds



Cauchy has narrow peak but slow fall-off

Can Now Change Number of Fourier Harmonics on Restart

- Kinetic & magnetic harmonics were output w/ variable time but fixed in ntor
- Now ntor dimension is variable too, so
- Useful especially when restarting with different number of toroidal planes
- Will not work with C1.h5 files made by previous versions
- If anyone knows how to change the maxdim of HDF5 dataspace, let me know