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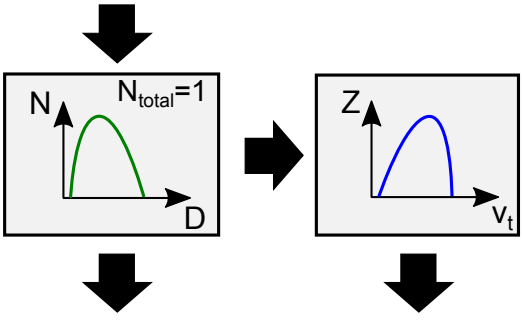
Simulation of particle spectra and creation of lookup table

Collect a set of $\boldsymbol{i}_L$, $\boldsymbol{n}_L$ and $\boldsymbol{p}_L$ by iterating through all realistic combinations of $\boldsymbol{i}$, assuming a gamma size distribution.

Input:

$\boldsymbol{i}_L = (particle\ type, p, T, \sigma_{total}, D_m, \mu)$



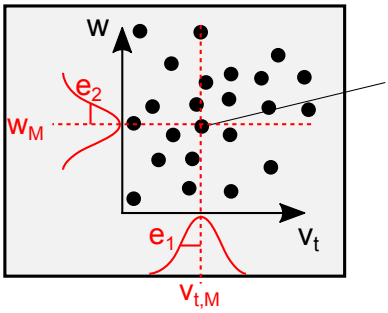
Normals:
$\boldsymbol{n}_L = (N_1, F_1, Z_1, E_1)_L$

Size/shape properties:
$\boldsymbol{p}_L = (v_t, w, Z/E)_L$

(b)
Lookup a result

Create space with a combination of the coordinates (here: v_t, and w) and fill with corresponding vectors $\boldsymbol{n}_L$ and $\boldsymbol{i}_L$.

Calculate the distribution of matching probability in (v_t , w)-space against vector $\boldsymbol{m}$=($v_{t,M}$, w_M) measured with errors



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Scale normal vectors and combine with P

Retrieve vectors $\boldsymbol{r}_L$ of extensive properties by scaling each normals vector of the lookup table with measured Z_M and the simulated Z_1 so that $\boldsymbol{r}_L = \boldsymbol{n}_L\ (Z_M / Z_1)$

Plot an element of all vectors $\boldsymbol{r}_L$ vs matching probability P (Example for Number Concentration):