Variables with `m` are know to `Distribution`. The variable E_{LL} means lower energy limit, E_{ULm} means upper energy limit.

`Distribution::applyEmissModelNonEquil(double ELowerLimit, double` $\&\beta\gamma_x$`, double` $\&\beta\gamma_y$`, double` $\&\beta\gamma_z$`)`

$allow \leftarrow false$
$E \leftarrow 0$
while $!allow$ **do**
$E \leftarrow E_{LL} + Urand() \times E_{ULm};$
$exp\Delta E = \exp{(E - E_m^{Fermi})}/T_m^{cath}$
$f = ((1.0 - 1.0/(1.0 + exp\Delta E * e^{\frac{E_m^{laser}}{T_m^{cath}}}))/(1.0 + exp\Delta E))$
if $Urand() \leq f$ **then**
$allow = true$
end if
end while

Compute the emission angles:

$E_{Int} = E + E_m^{laser}$
$E_{Ext} = E - E_{LL}$
$\theta_{IntMax} = \arccos\sqrt{(E_{LL} + E_m^{laser})/(E_{Int})}$
$\theta_{Int} = Urand() \times \theta_{IntMax}$
$sin\theta_{Out} = \sin\theta_{Int} \times \sqrt{E_{Int}/E_{Ext}}$
$\phi = 2\pi \times Urand()$

Compute the emission momenta:

$\beta\gamma_{Ext} = \sqrt{(E_{Ext}/(m_e + 1.0))^2 - 1.0)}$
$\beta\gamma_x = \beta\gamma_{Ext} \times sin\theta_{Out} \times \cos\phi$
$\beta\gamma_y = \beta\gamma_{Ext} \times sin\theta_{Out} \times \sin\phi$
$\beta\gamma_z = \beta\gamma_{Ext} \times \sqrt{1.0 - sin\theta_{Out}^2}$