

`GaussianCoulomb[x, y, sigx, sigy]` returns the electromagnetic force  $f_x + if_y$  at the coordinates  $(x, y)$ , generated by a Gaussian bunch with sizes  $(\mathbf{sigx}, \mathbf{sigy}) = (\sigma_x, \sigma_y)$ . Its derivative at the origin is

$$\frac{\partial f_x}{\partial x} = -2 \frac{x}{\sigma_x(\sigma_x + \sigma_y)}, \quad (201)$$

$$\frac{\partial f_y}{\partial y} = -2 \frac{y}{\sigma_y(\sigma_x + \sigma_y)}. \quad (202)$$