

This document lists the old and new variable and function names in the code.

Nomenclature:

old\_name → new\_name : explanation if necessary

- w0 → initial\_beamwidth
- el0 → initial\_coherence\_width
- r0 → initial\_radius\_of\_wavefront\_curvature
- w() → calculate\_width() (function)
- el() → calculate\_width() (function)
- res → resolution
- g\_period → grating\_period
- simchoice → simulation\_option
- gp0() → get\_initial\_intensity() (function)
- gp1() → intensity\_after\_1st\_grating() (function)
- gp2() → intensity\_after\_2nd\_grating() (function)
- vel → particle\_velocity
- zloc → current\_z\_position
- zres → z\_resolution
- G1\_z → z\_position\_1st\_grating
- G2\_z → z\_position\_2nd\_grating
- cutoff → intensity\_cutoff
- accountGrav → account\_gravity
- useimagecharge → account\_image\_charge
- Gthick → grating\_thickness
- izxnumels → total\_number\_of\_pixels
- izx → pixel\_array\_memory
- xstart → x\_start
- xend → x\_end
- ystart → y\_start
- yend → y\_end
- zstart → z\_start
- zend → z\_end
- zlocstart → initial\_z\_position
- Grat3l[] → intensity\_array[]
- height → slit\_height
- Grat3x[] → x\_positions\_array[]
- v() → calculate\_wavefront\_radius() (function)
- n → n1 (inside intensity\_after\_1st\_grating)
- m → n2 (inside intensity\_after\_1st\_grating)
- dm → average\_n (inside intensity\_after\_1st\_grating)
- n → average\_n (inside intensity\_after\_2nd\_grating)

- m → average\_m (inside intensity\_after\_2nd\_grating)
- ReT → real\_part\_fourier\_coefficient\_array
- ImT → imaginary\_part\_fourier\_coefficient\_array
- rowsT → number\_of\_rows\_fourier\_coefficient\_array
- ReT\_and\_ImT\_generator → real\_and\_imaginary\_arrays\_generator (function)
- lim → diffraction\_orders
- timeFreefall → time\_free\_fall (PhaseShifts.c)
- phGrav → phase\_gravity (PhaseShifts.c)
- phM → phase\_van\_der\_waals (PhaseShifts.c)
- gravAccel → gravity\_acceleration (PhaseShifts.c)
- coef → coefficient (Gratings.c)
- difPlancks → hbar (PhaseShifts.c)
- a5 → central\_index\_1
- b5 → central\_index\_2
- c5 → central\_index\_3
- d5 → central\_index\_4
- x2pnts → find\_element\_position\_in\_array
- tilt → tilt\_angle
- exnmright → distance\_to\_upper\_side
- exnmleft → distance\_to\_lower\_side
- wedgeangle → wedge\_angle
- theta → twist\_angle
- dm → delta\_m
- dn → delta\_n
- z12 → current\_z\_distance\_to\_1st\_grating (inside intensity\_after\_1st\_grating)
- z23 → current\_z\_distance\_to\_2nd\_grating (inside intensity\_after\_2nd\_grating)
- z13 → current\_z\_distance\_to\_1st\_grating (inside intensity\_after\_2nd\_grating)

Here end the name changes up to v1.0

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## Removed variables

- resolution: all references to resolution were changed to `sp.resolution` and any declarations of the kind `resolution = sp.resolution` were deleted
- rows: removed because it only used `sp.resolution` values. Now every place that referred to "rows" refers to "`sp.resolution`".
- vel: it was unnecessarily declared in the former `gp#` functions
- izxsize: it was only being declared as the size of the `izxnumels` variable (now called `total_number_of_pixels`). It was not used anywhere else.
- `sp.thick`: the thickness of the gratings is contained in '`sp.grating_thickness`'.
- chargeratio: this unused local variable in `PhaseShifts.c` was related to electron modeling.
- eta: recurring (and unused) local variable in `PhaseShifts.c` and `Gratings.c`, hailing from ancient IGOR PRO code. It referred to the ratio between the vertical size of one slit (the 'slit height') and the vertical distance between two consecutive slits (the 'grating period').
- eta1 and eta2: unneeded local variable in `PhaseShifts.c`. The structure variables `sp.eta1` and `sp.eta2` remain in the code.
- `sp.account_image_charge`, used for electron beam simulations.
- Planck, used in `PhaseShifts.c` for holding Planck's constant.
- mytheta, used in `Gratings.c` for holding `sp.theta`.
- nmvel: `sp.velocity` of beam particles is now handled in SI units. See commit 4397396.
- Const\_e: used in `Misc.c` for holding Napier's constant. Now using standard `math.h` `M_E`.
- `sp.elecOrAtom`: for now, the code will only model muonium.
- phi : it was unused inside `gratings.c`
- z12: equations could be rewritten in a better way inside `intensity_after_2nd_grating` so it could be removed
- realzloc, the wrong values for the dimensions of the interferometer then this variable was a trick to make the simulation without fixing that. The dimensions are now more accurate.

Here end the deletions up to v1.0

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