OSC Updates

- Helical undulator
- Off-axis radiation
- 800 nm radiation

1 GeV, Helical Undulator

	Peak Field (V/m)	Energy Transfer (meV)
SRW – telescope Square lens, 16mm/side	35	164
SRW – lenses as above, Ignore extra bit of undulator	35	148
L-W code – square lens, 16mm/side	35	162

Off-Axis Field

	Peak Field (V/m)	Energy Transfer (meV)
Helical Undulator	28	130
Planar Undulator	31	76

(SRW, telescope, square lens, 16mm/side, 1 GeV,
1 micron wavelength, 100 microns off in x and y)

80% of nominal values

800 nm Radiation

	Peak Field (V/m)	Energy Transfer (meV)
Helical Undulator	50	212

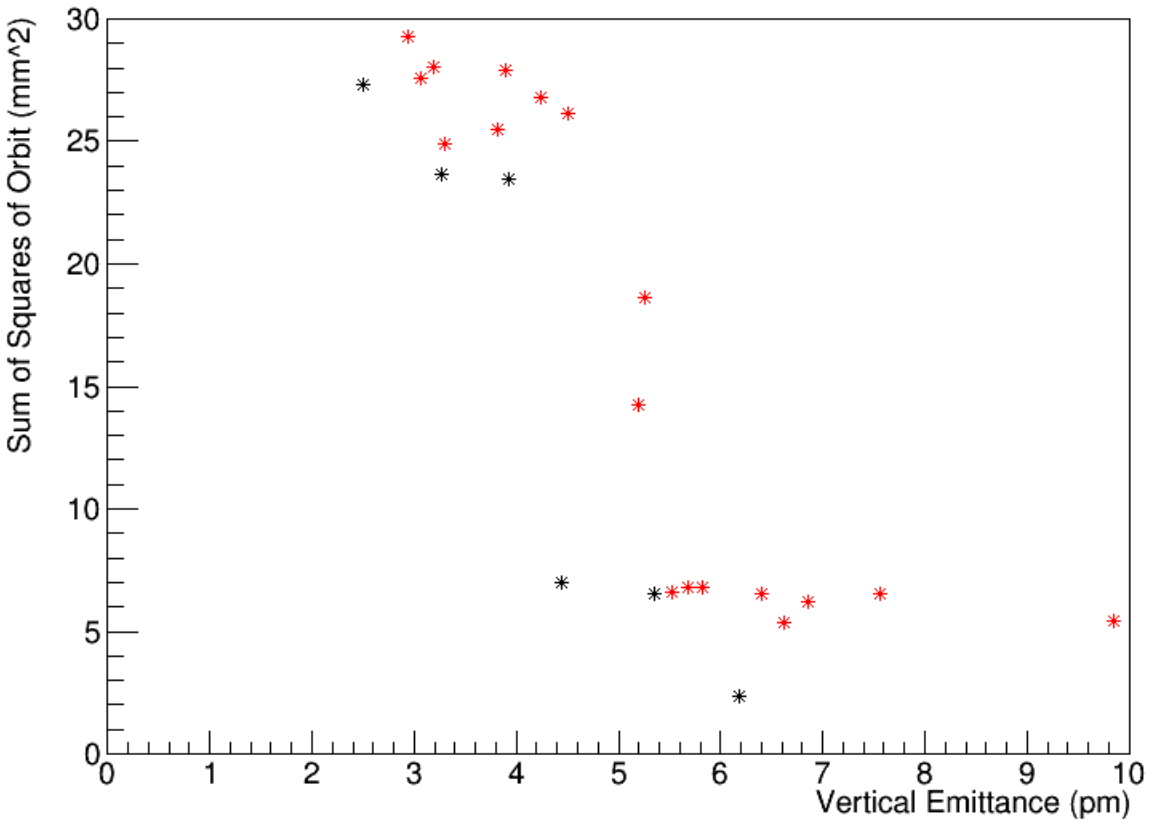
(SRW, telescope, square lens, 16mm/side, 1 GeV,
1 micron wavelength, 100 microns off in x and y)

Sloppy Models Updates

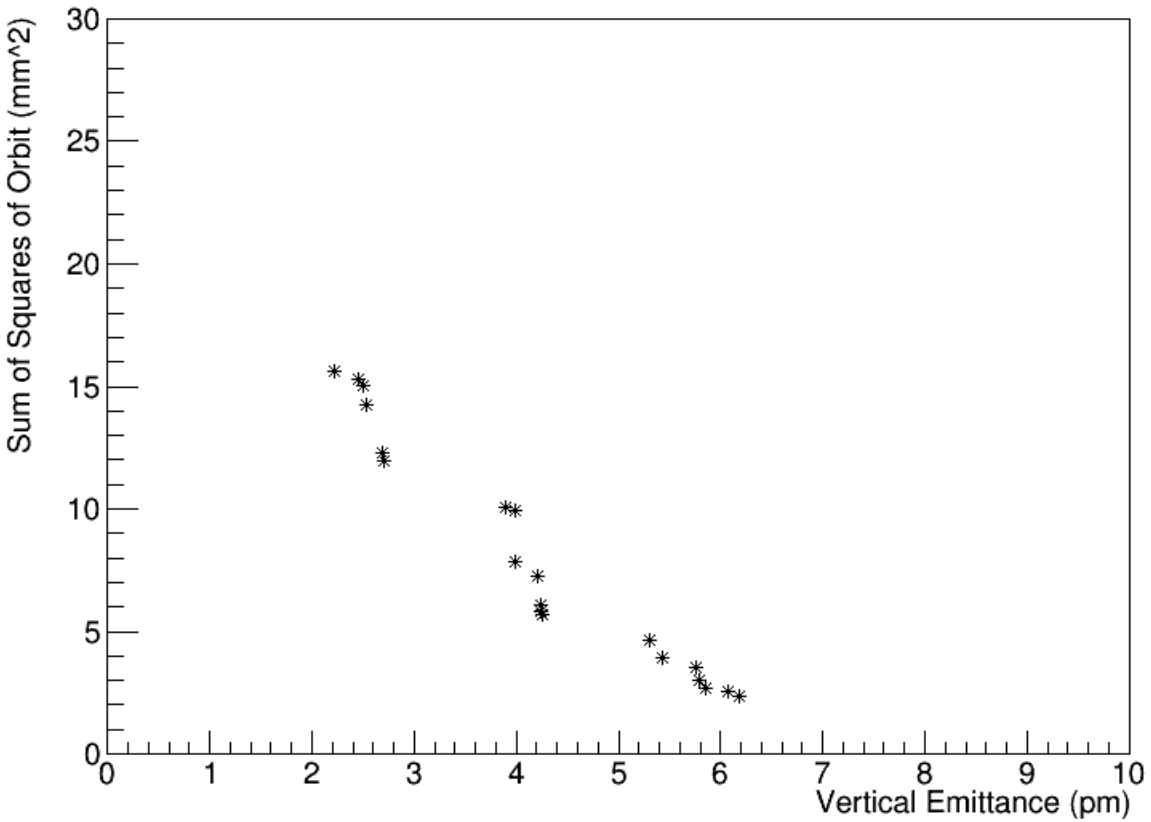
- Compare knobs vs raw magnets on different sets of misalignments

- Deterministic search for pareto front

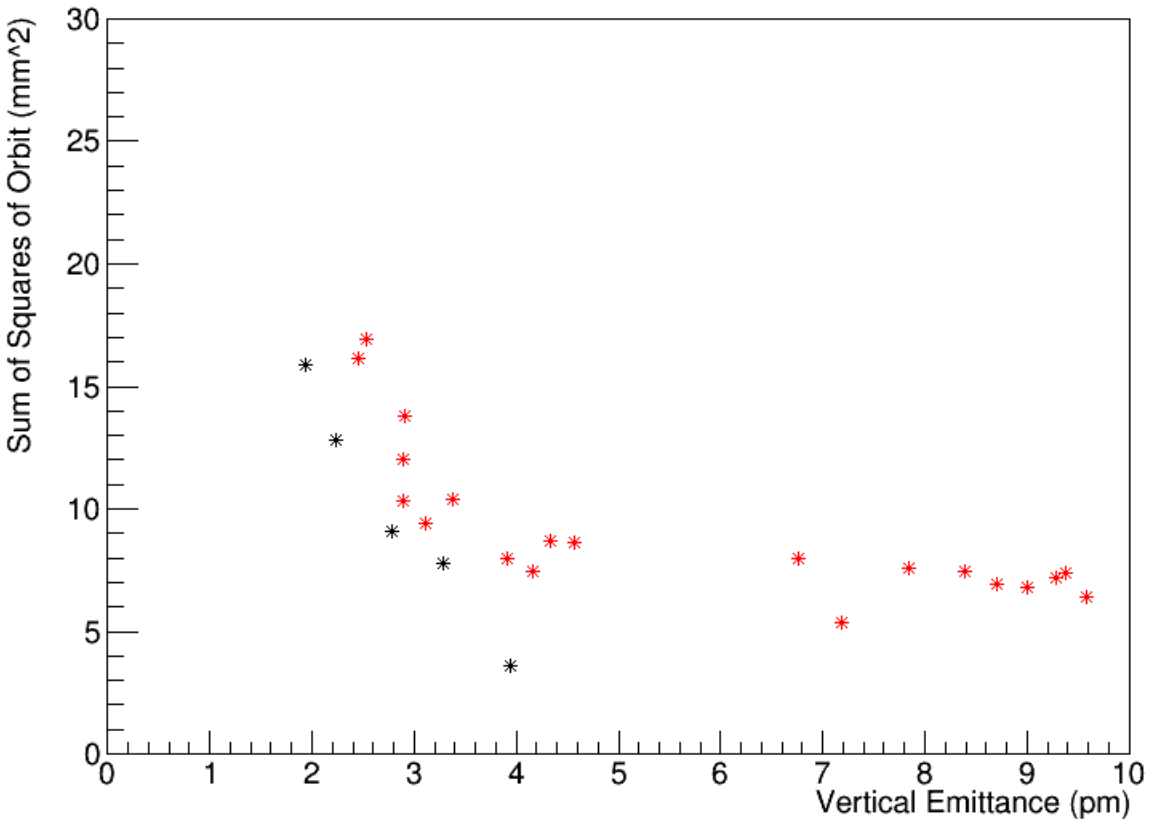
Lattice 008110823, Raw Magnets



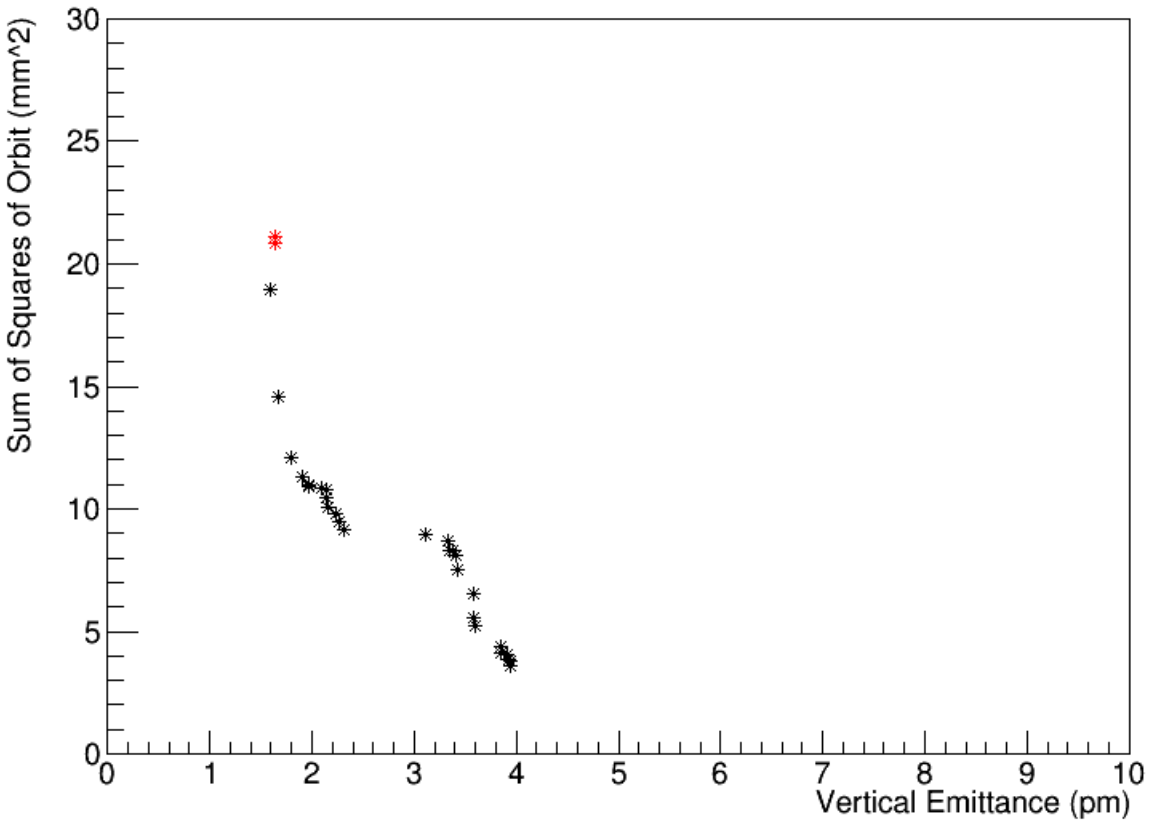
Lattice 008110823, Knobs



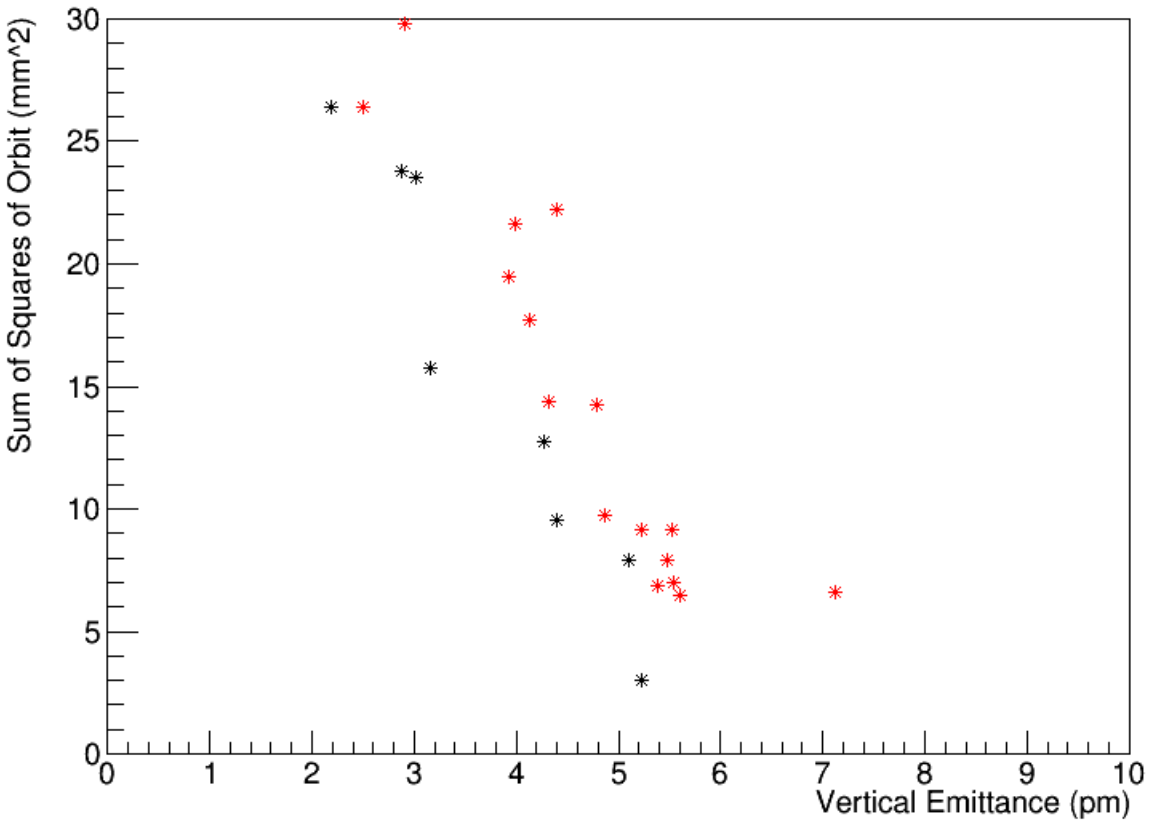
Lattice 990990919, Raw Magnets



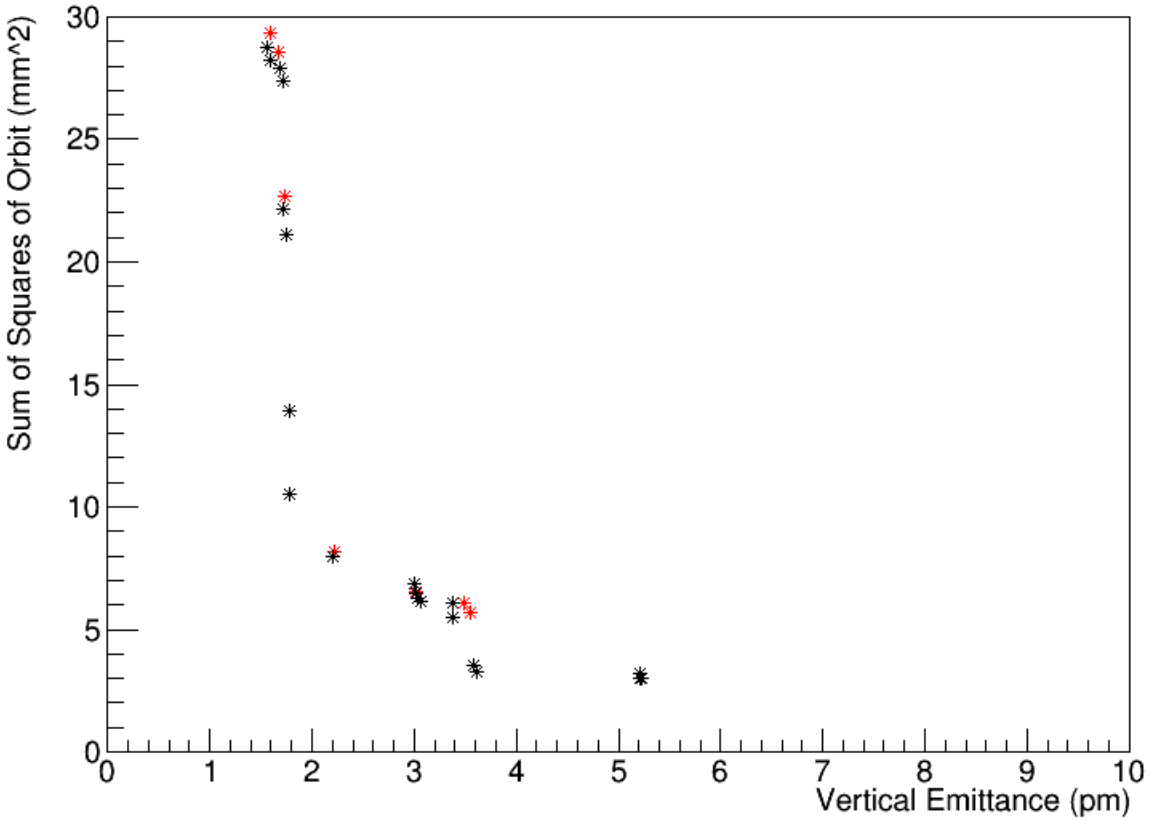
Lattice 990990919, Knobs



Lattice 005786835, Raw Magnets



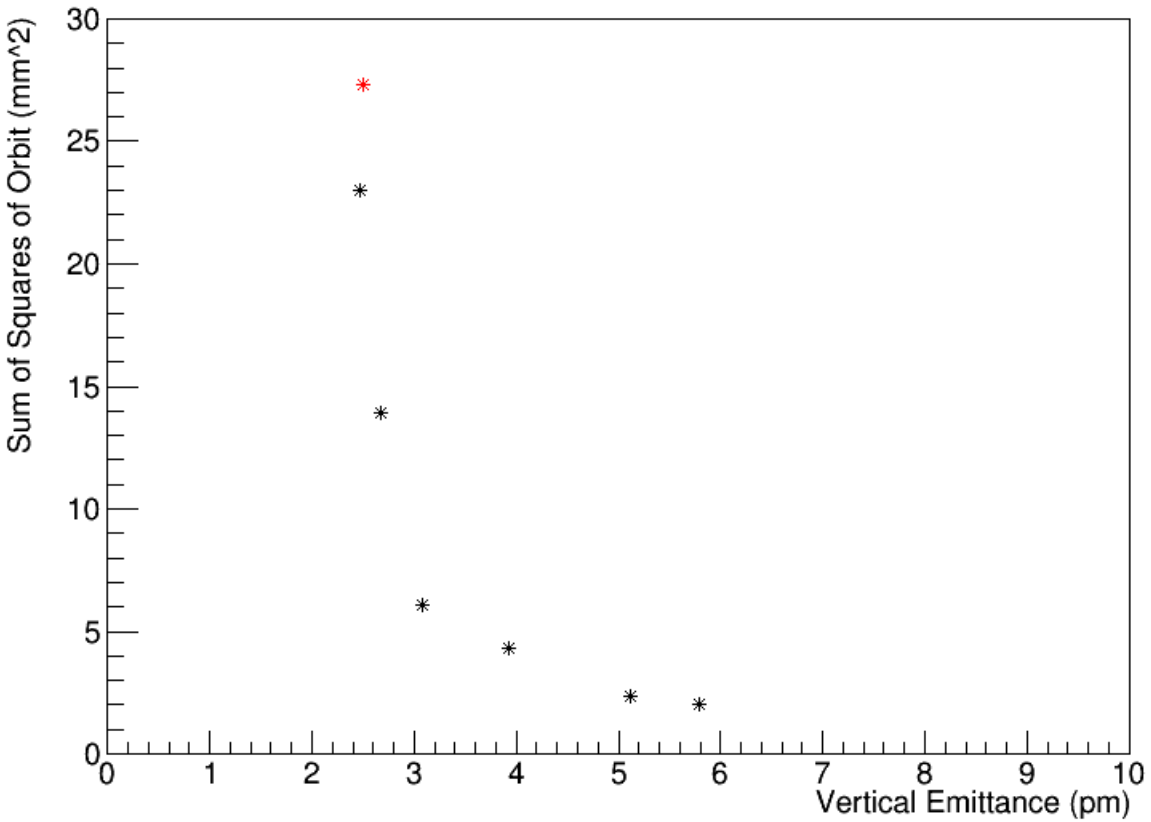
Lattice 005786835, Knobs



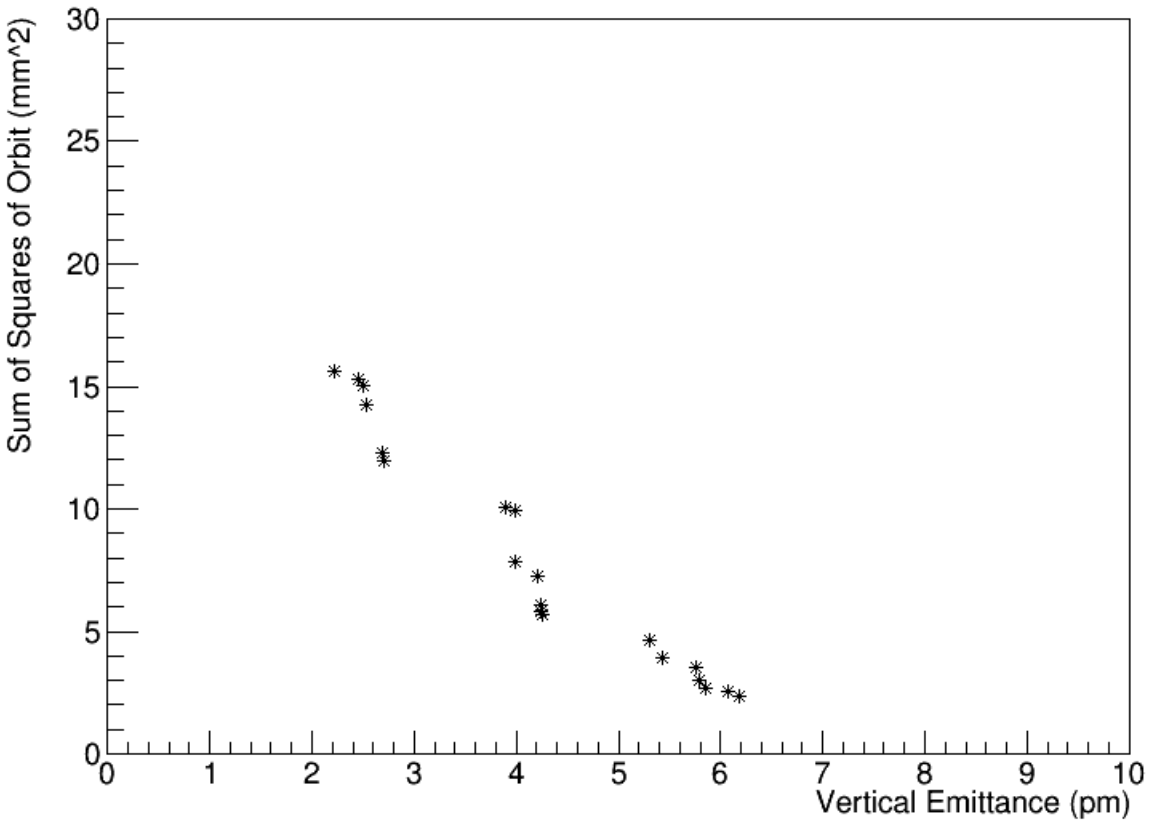
Deterministic Pareto Front

- Use joint emittance-orbit Hessian, with variable scale factor
- Minimize the emittance-orbit merit function, again, with varying scale factor

Lattice 008110823, Deterministic



Lattice 008110823, Knobs



Future

- Use joint emittance-orbit knobs in genetic algorithms?
- Read in orbit information from CESR

Backup Slides

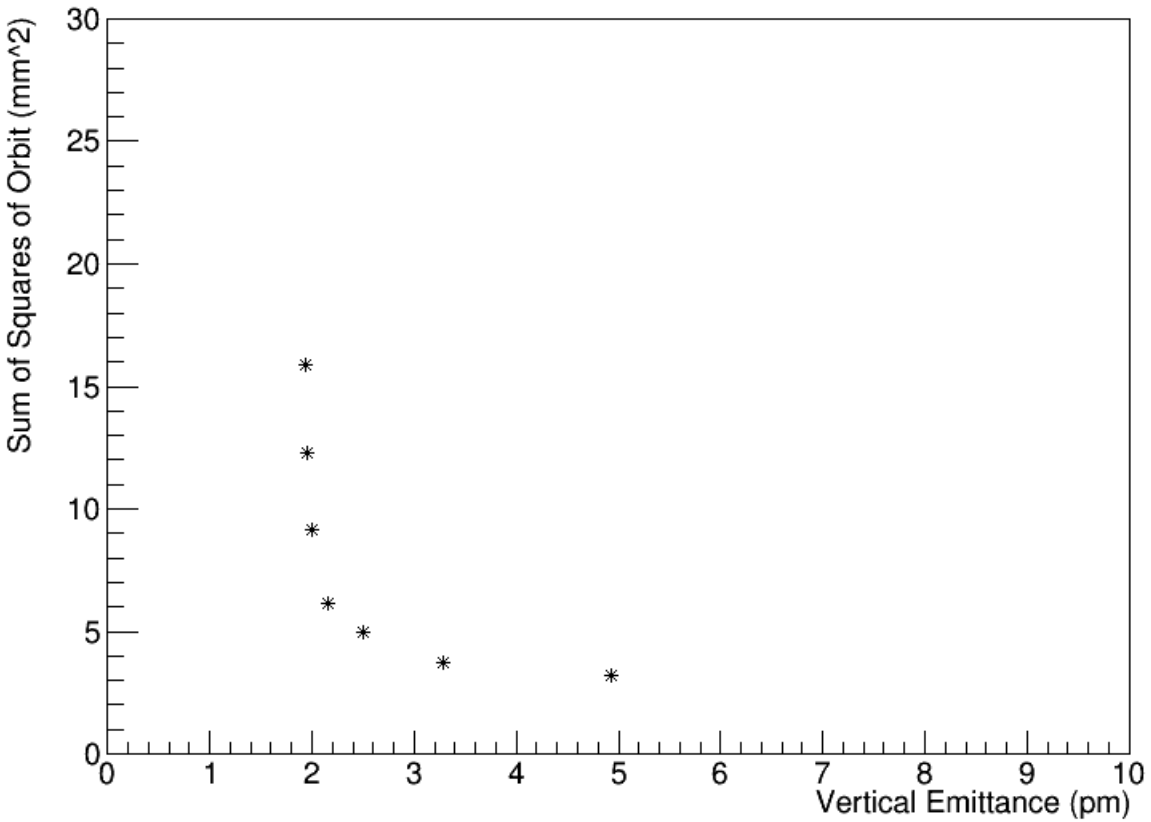
500 MeV Results (2 Weeks Ago)

	Peak Field (V/m)	Energy Transfer (meV)
SRW – telescope Square lens, 16mm/side	38	93
SRW – lenses as above, Ignore extra bit of undulator	38	81
Lebedev - circular lens, radius 8mm	35	79
Lebedev - circular lens, radius 8 x sqrt(2) mm	41	93
L-W code – square lens, 16mm/side	38	85
L-W code – circular lens, 8mm radius	35	80

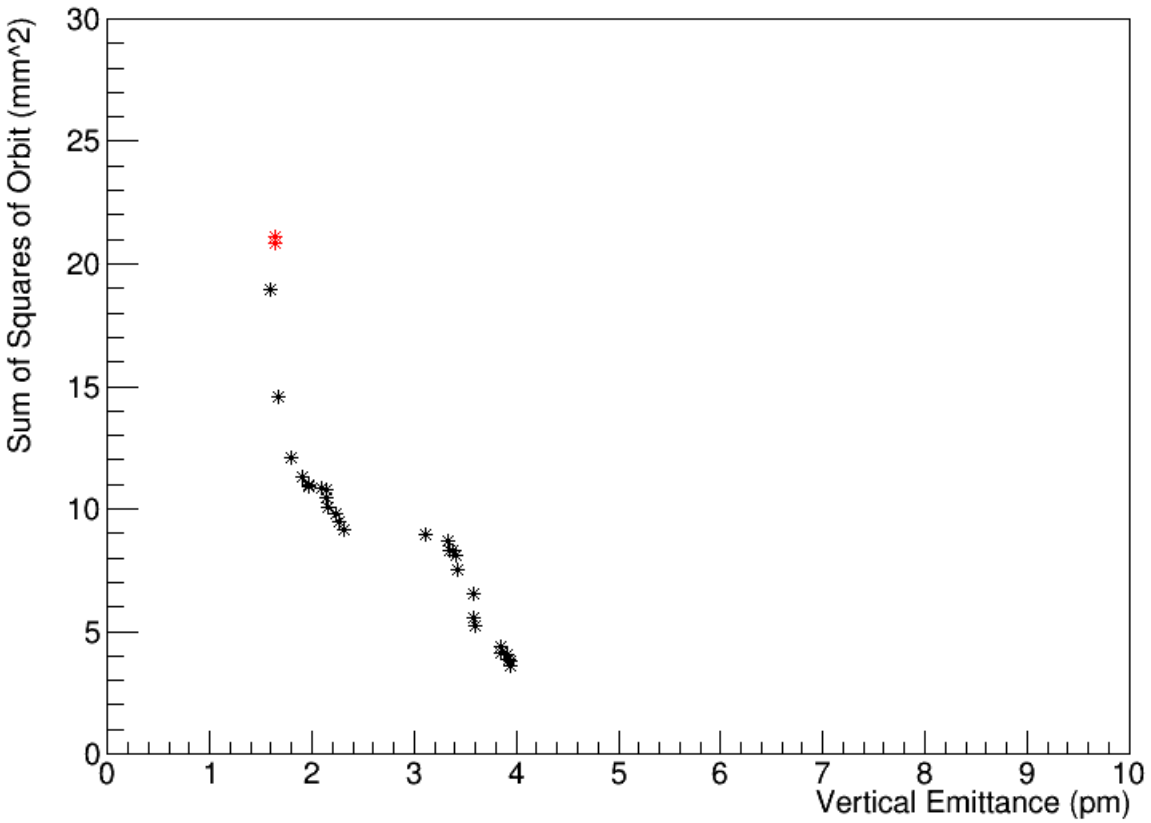
1 GeV Results (Planar Undulator) (Last Week)

	Peak Field (V/m)	Energy Transfer (meV)
SRW – telescope Square lens, 16mm/side	38	95
SRW – lenses as above, Ignore extra bit of undulator	38	83
Lebedev - circular lens, radius 8mm	35	81
Lebedev - circular lens, radius 8 x sqrt(2) mm	42	96
L-W code – square lens, 16mm/side	38	

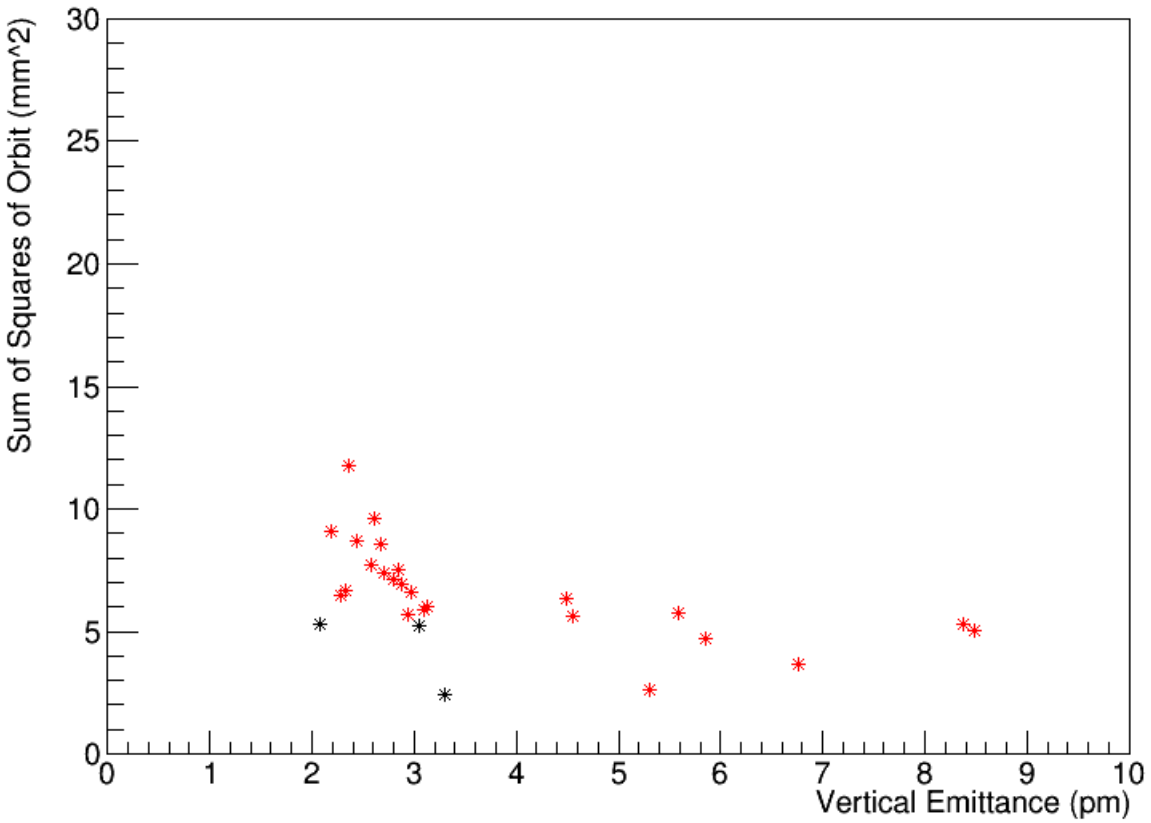
Lattice 990990919, Deterministic



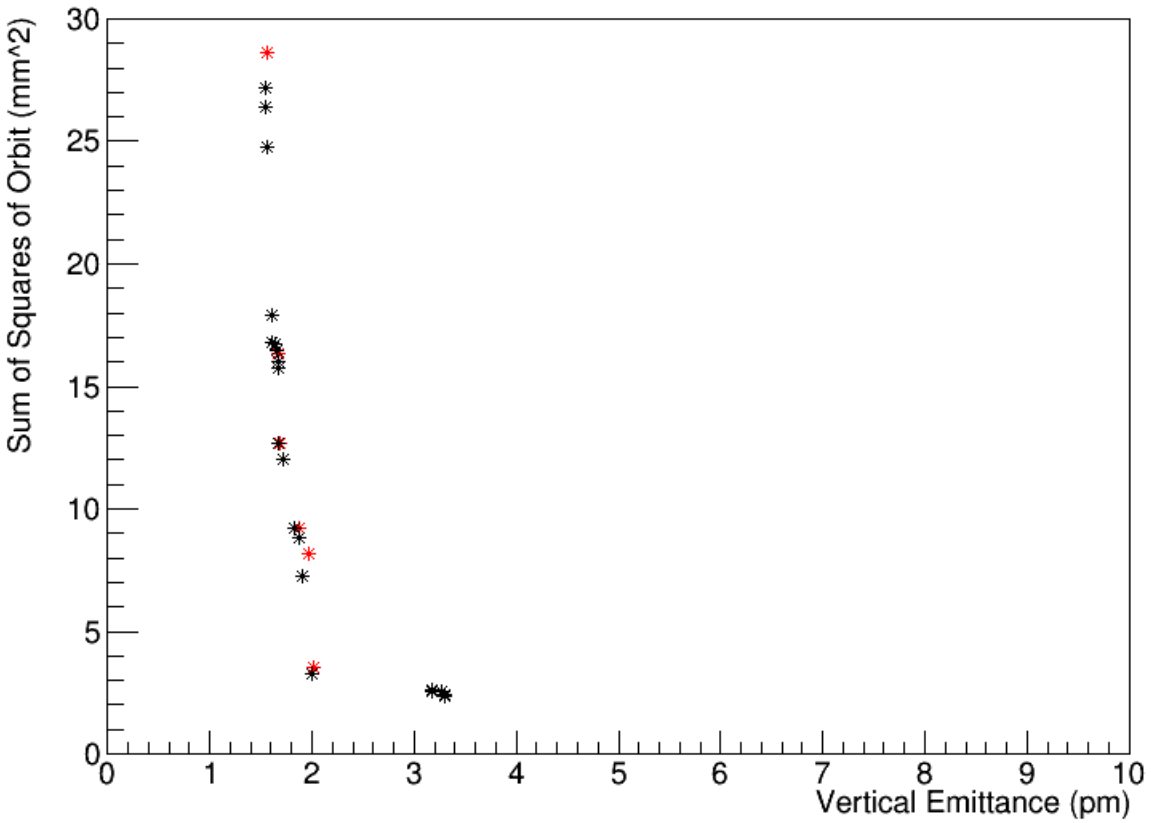
Lattice 990990919, Knobs



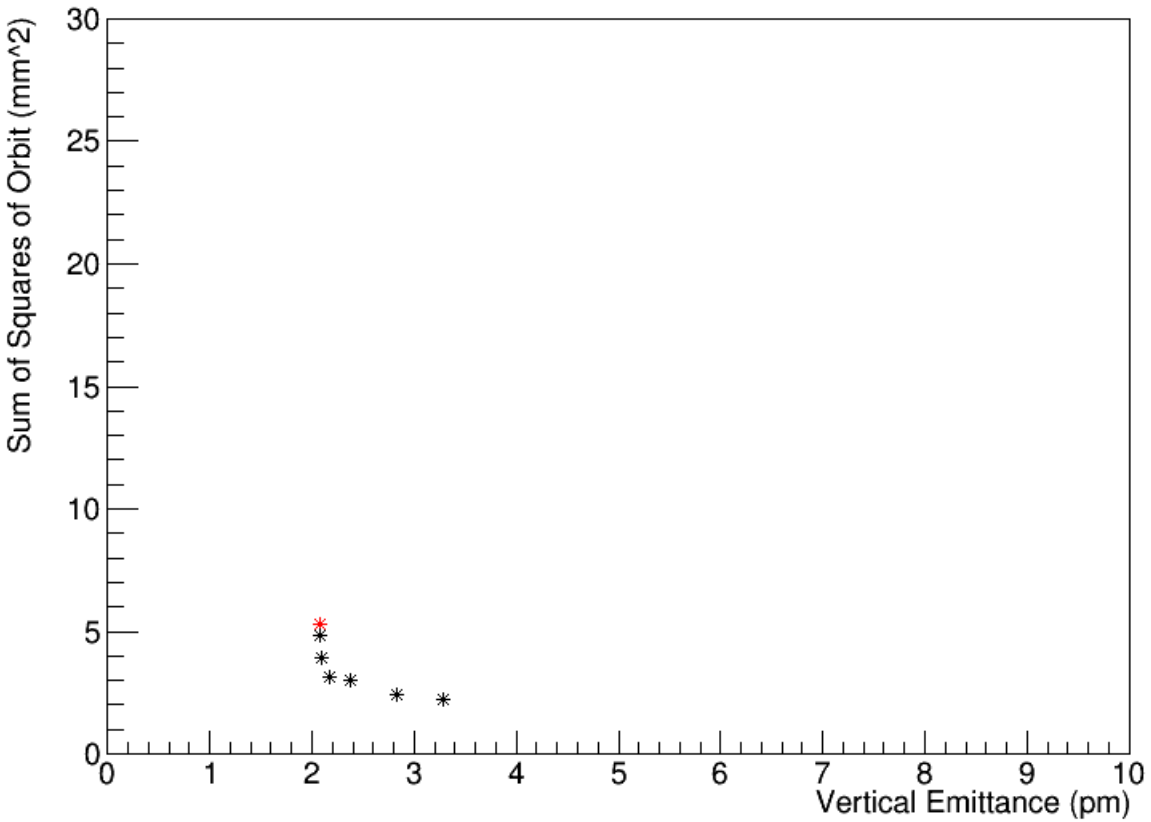
Lattice 001764728, Raw Magnets



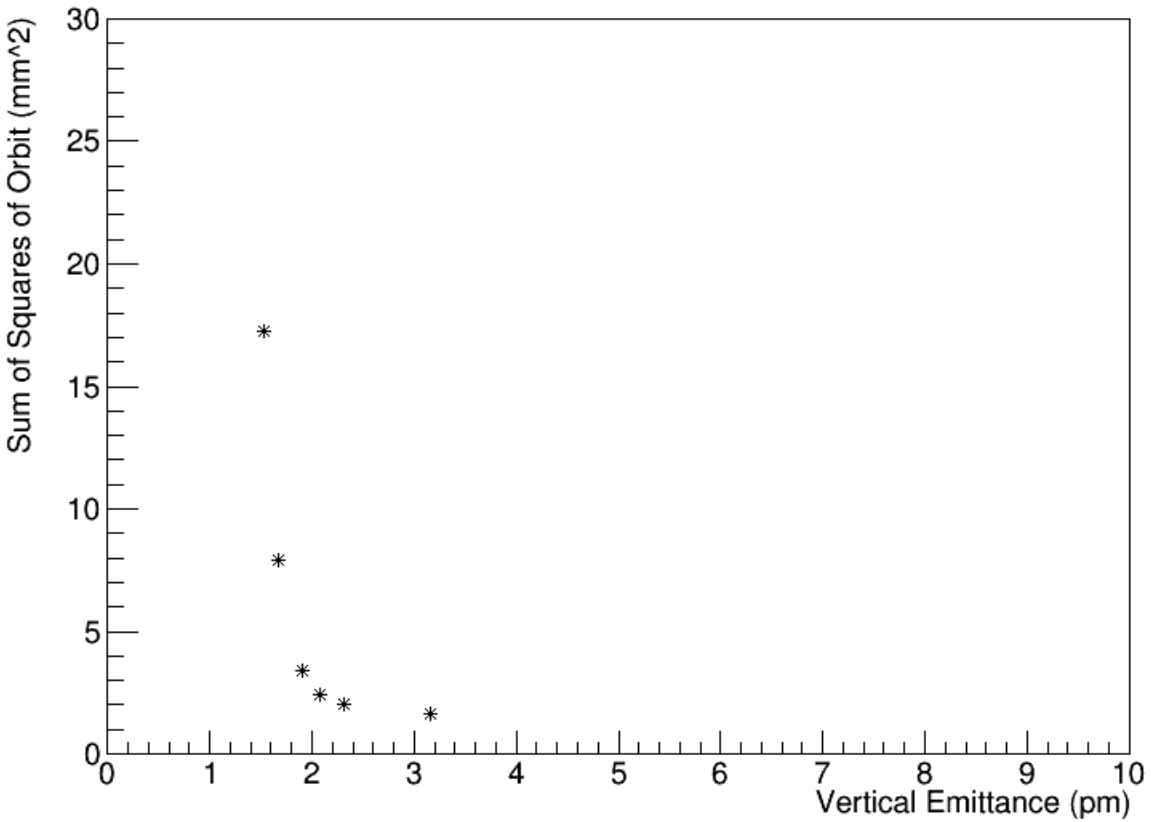
Lattice 001764728, Knobs



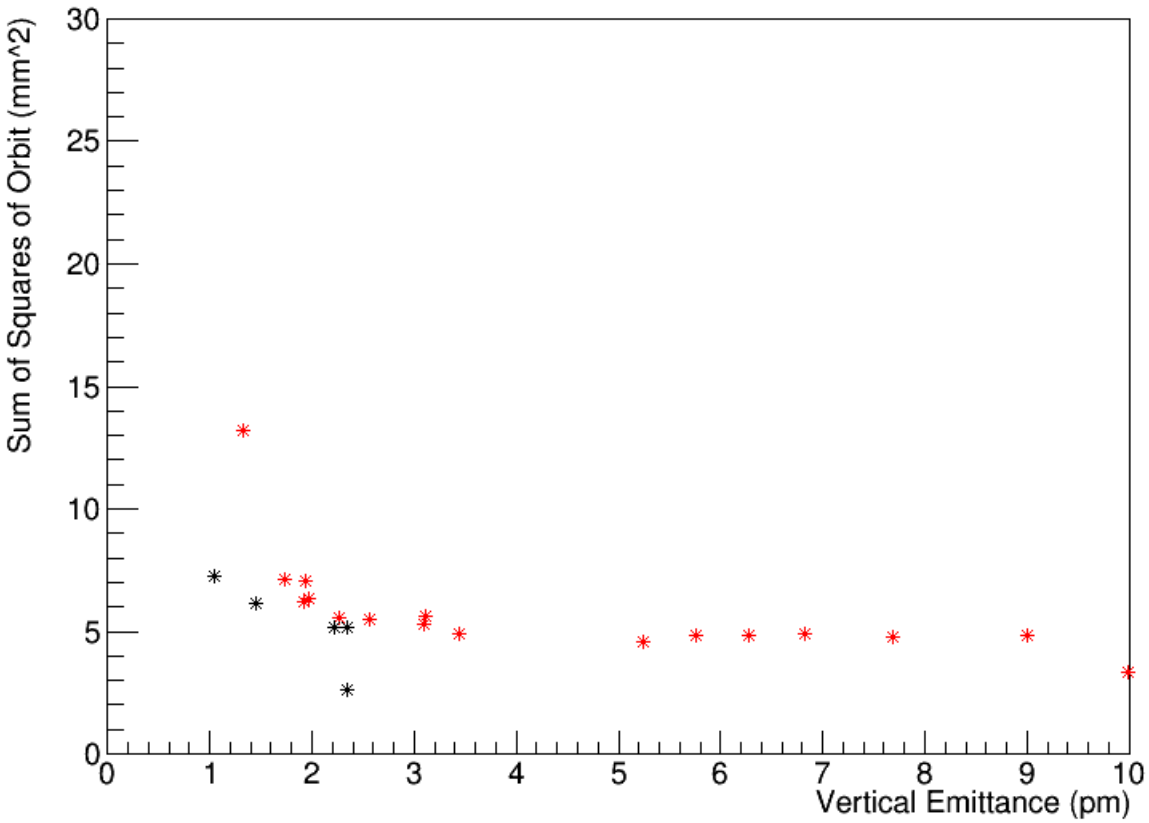
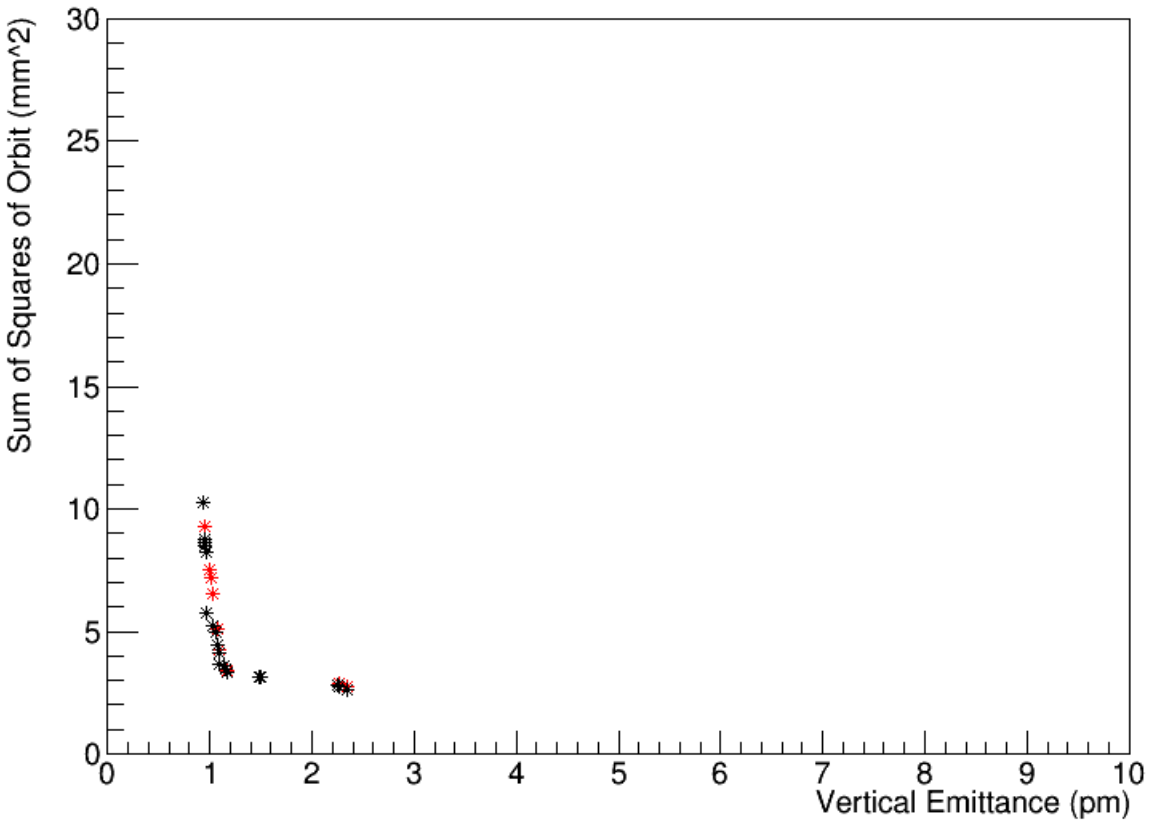
Lattice 001764728, Deterministic



Lattice 001764728, Deterministic, 16 Knobs



Lattice 003905565, Raw Magnets



Lattice 003905565, Knobs