

Zone plate drN = 24 nm, D = 133 μm, t = 330 nm

Calculated parameters

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INPUT parameters for zone plate calculations

File name: "Efficiency_Au_t_330_nm_8keV_12keV.txt"

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SYSTEM parameters

Distance from source [m] = 74
Vertical Source size [microns, FWHM] = 24.2050

INPUT values

[INPUT] Outermost Zone Width drN [nm] = 24.0000
[INPUT] Diameter D [microns] = 133.000
[INPUT] Photon energy [keV] = 10.0000
Wavelength [Å] = 1.23982
[INPUT] Material: Au
Material file:
C:\xray_physics\DABAX_files\Au_dabax_brennan_2_6mrad_100eV_100keV.txt
[INPUT] diffraction order 1.00000
[INPUT] zone plate thickness [micron] = 0.330000

X-ray Optical constants (interpolated)

Energy used [keV] = 10.0000
f1 used = 73.1841
f2 used = 5.16921
delta used = 2.97728e-005
beta used = 2.10295e-006
mu_l [1/cm] used = 2131.43
mu [cm²/g] used = 110.437
sigma [barn] = 36120.6
ref_s used = 0.950865
ref_p used = 0.950862
ref_t (unpol) used = 0.950864

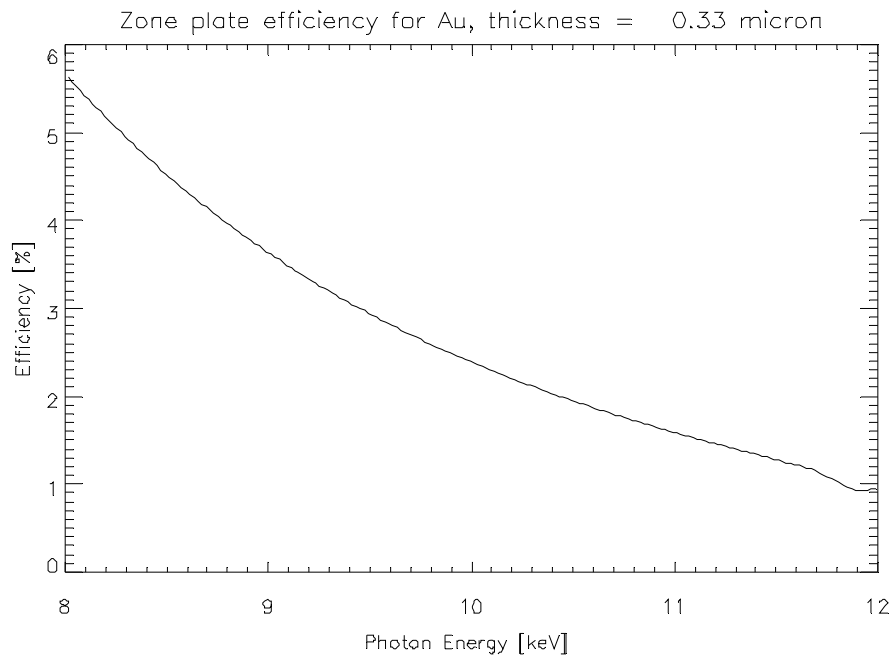
INTRINSIC ZONE PLATE PARAMETERS

Focal length, f [cm] = 2.57457 at E = 10.0000 [keV]
Radius of 1st zone, r1 [micron] = 1.78662
Numerical Aperture, NA [mrad] = 2.58296
Depth of focus, DOF [micron] = 11.3358
Number of zones for full structure: N = 1385.42
Diffraction limited spot (circular aperture) [nm] = 29.2800

DERIVED ZONE PLATE PARAMETERS

Magnification = 0.000347915 for zone plate at 74 m from source
Image distance b [cm] = 2.57546
Spot size [nm] = 30.4670
Efficiency = 2.38755% at 10.0000 keV for t = 0.330000 micrometer

Maximum efficiency vs energy [%] = 5.62953
Optimum energy (at maximum efficiency)[keV] = 8.01366



Maser, Mar/09