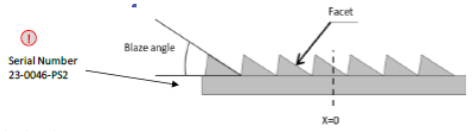
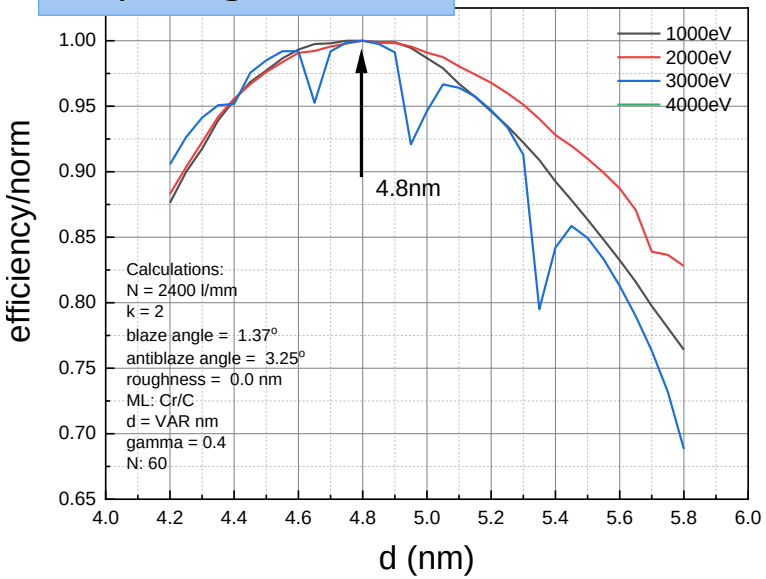
the real grating

Specified vs. Achieved Values

Grating Pattern PG2400	Specified Values	Achieved Values	Check
Grating area (length x width)	144 mm x 14 mm	144 mm x 14 mm	✓
Line profile	blazed	blazed	
Line spacing	constant	constant	
$a_0\ (mm^{-1})$	2400	2399.89 ± 0.11	✓
Blaze angle	1.45 degree	(1.37 ± 0.22) degree (uncertainty: 2-σ)	✓
Anti-Blaze angle	not defined	(3.25 ± 0.86) degree (uncertainty: 2-σ)	
Groove orientation	perpendicular to long axis within ± 0.2°		
Reflection coating	no coating (multiplayer coating by ELISA Team)		
Micro roughness, nm rms (HSFR (2))	0.3	(0.161 ± 0.017) (uncertainty: 2-σ)	
Blaze Orientation			

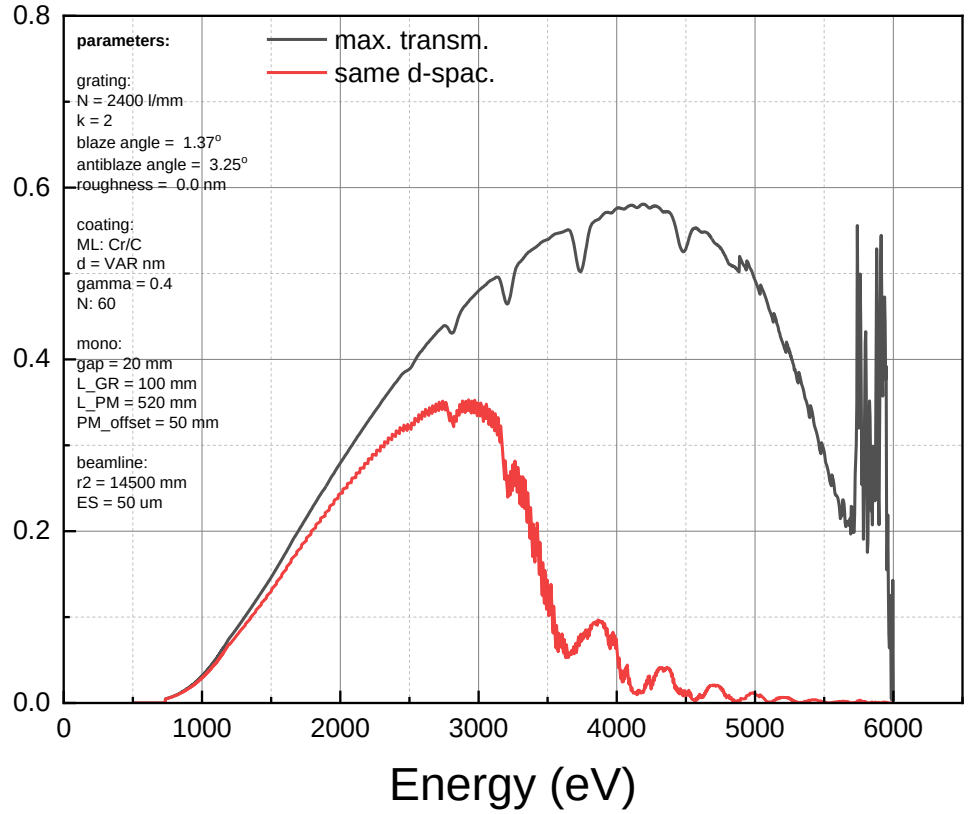


d-spacing selection



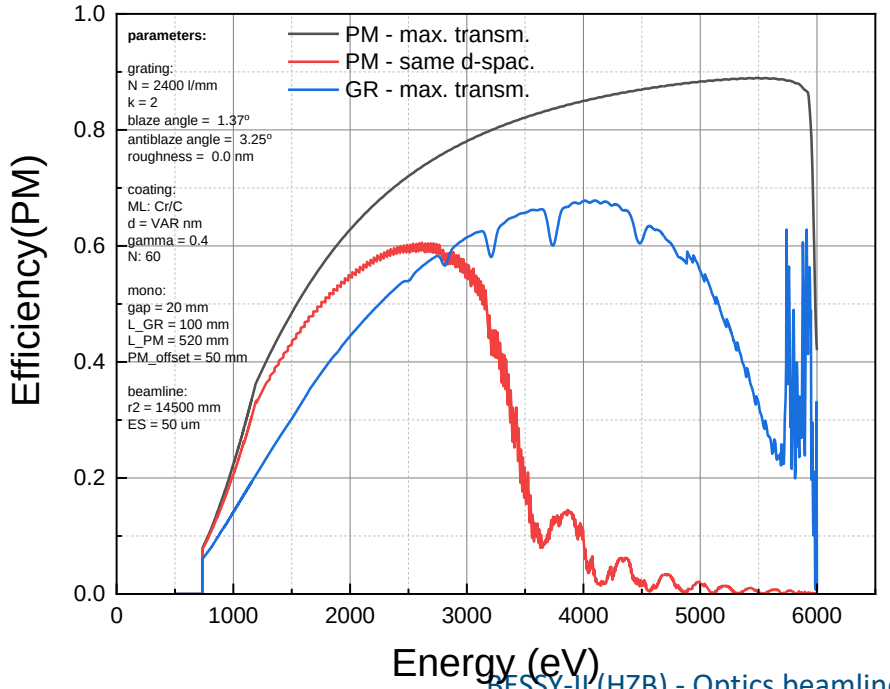
transmission thru mono with full acceptance (defined by grating) including angular limits of mono and PM acceptance for cases:

- max possible (need to variate d-spacing on PM)
- GR and PM have the same d-spacing



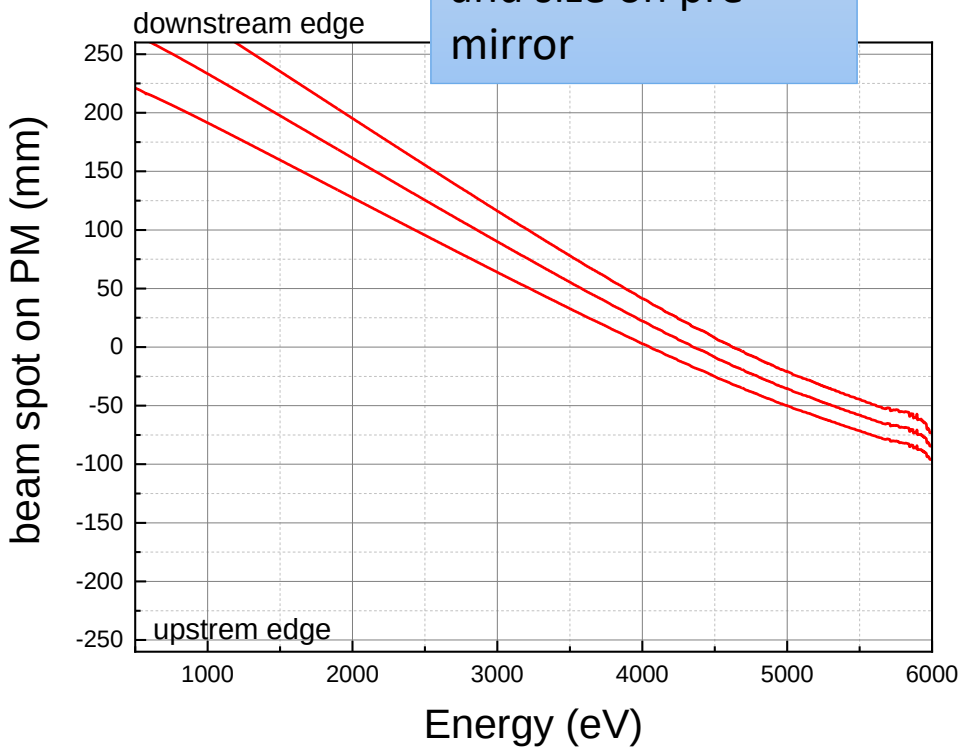
efficiencies of:

- grating
- plane mirror (on Bragg)
- plane mirror (@ theta for grating)



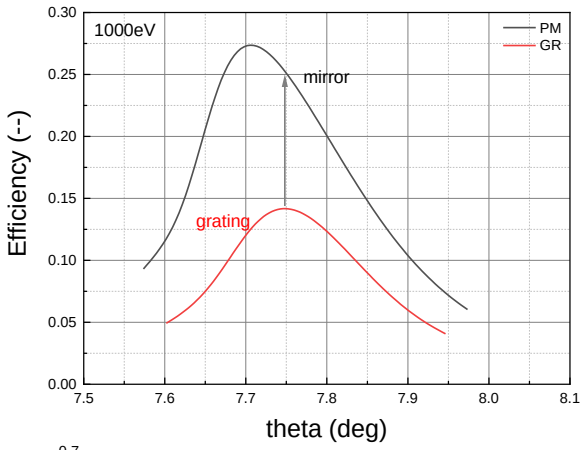
the real grating

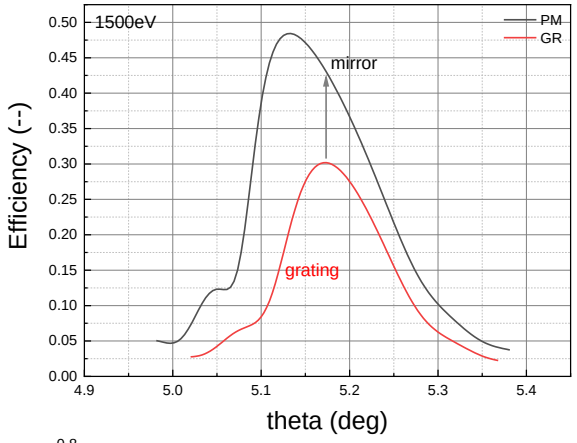
beam spot position and size on pre-mirror

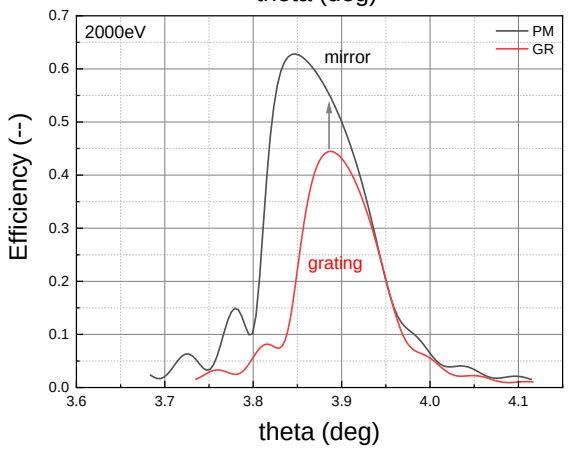


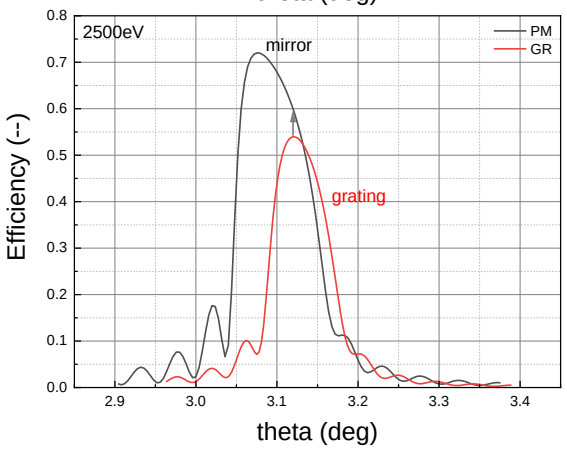
graph: req. d-spacing

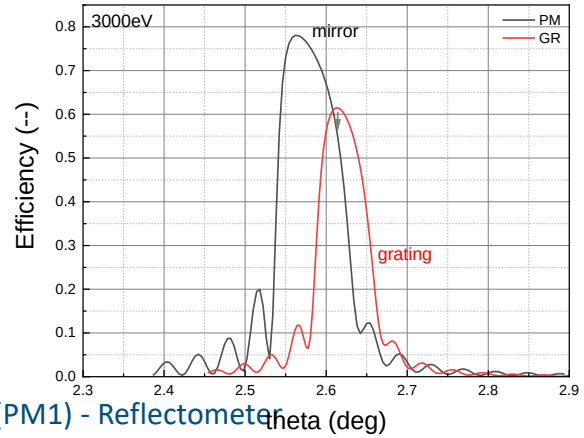
Bragg res. for mirror and grating

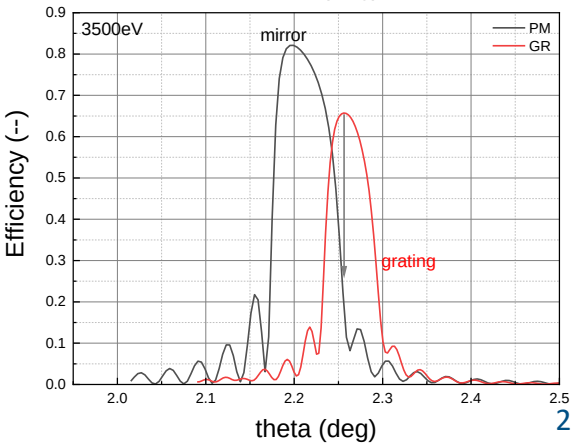






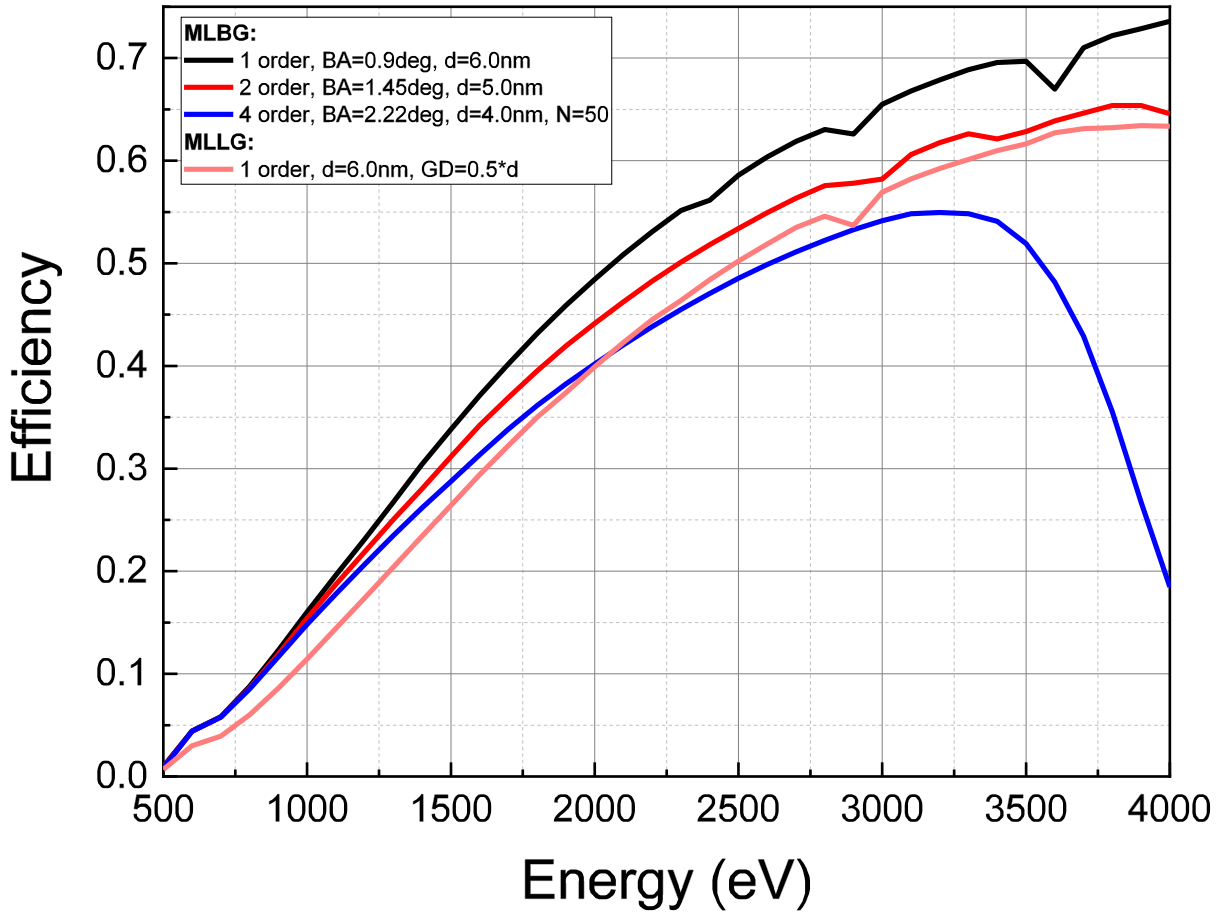




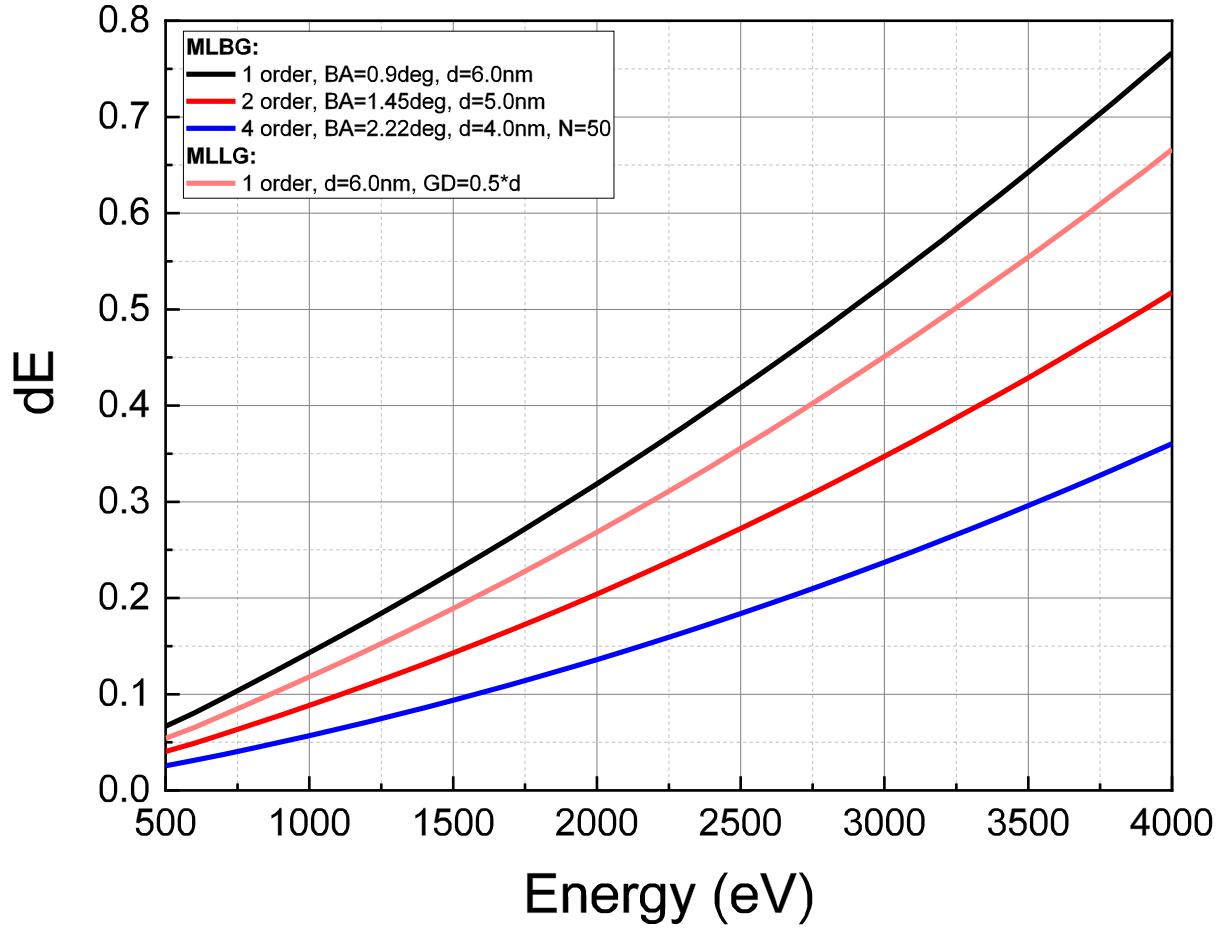


ML coated grating selection: Main Result

ML coated grating efficiency



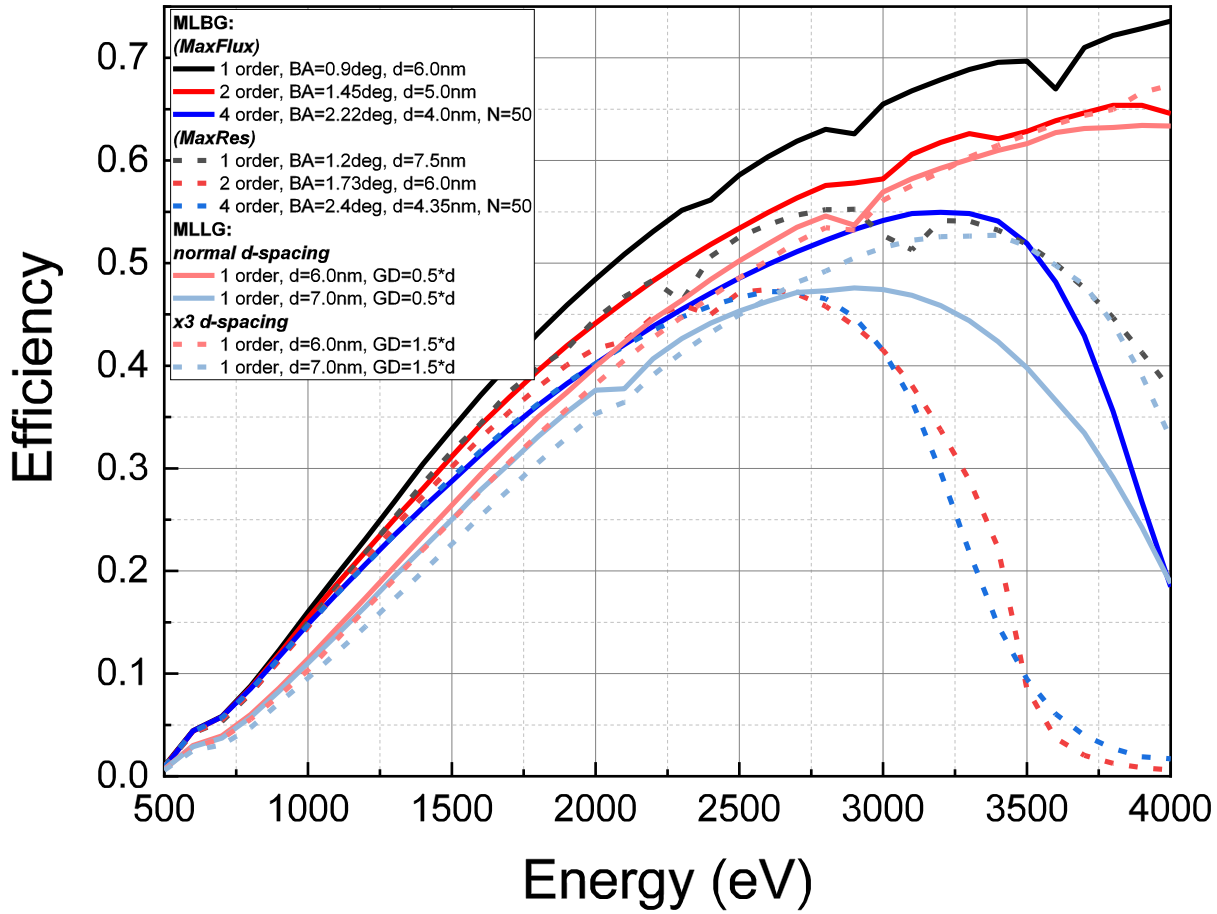
rough estimation of resolution with exit slit of 50 um

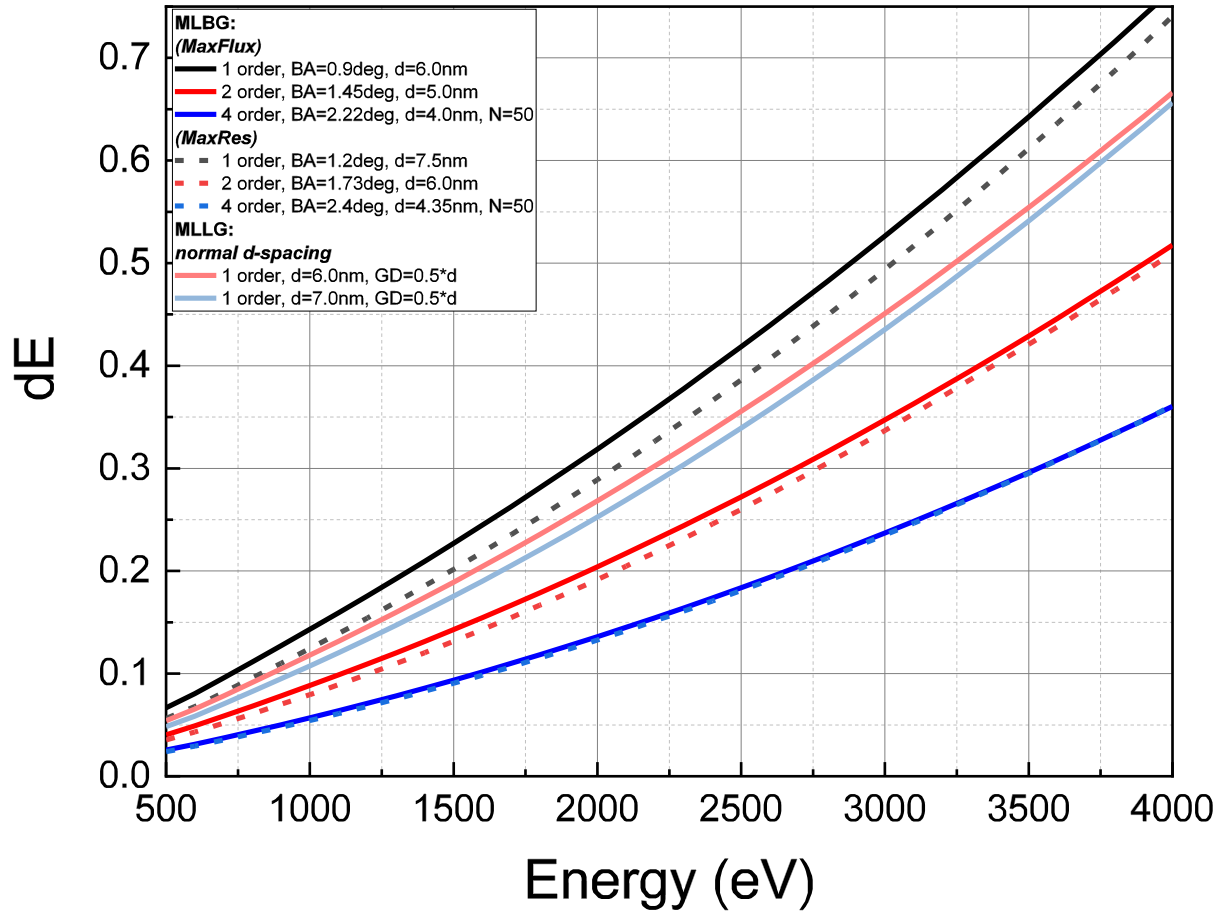


ML coated grating selection: Main Result and some more possibilities

ML coated grating efficiency

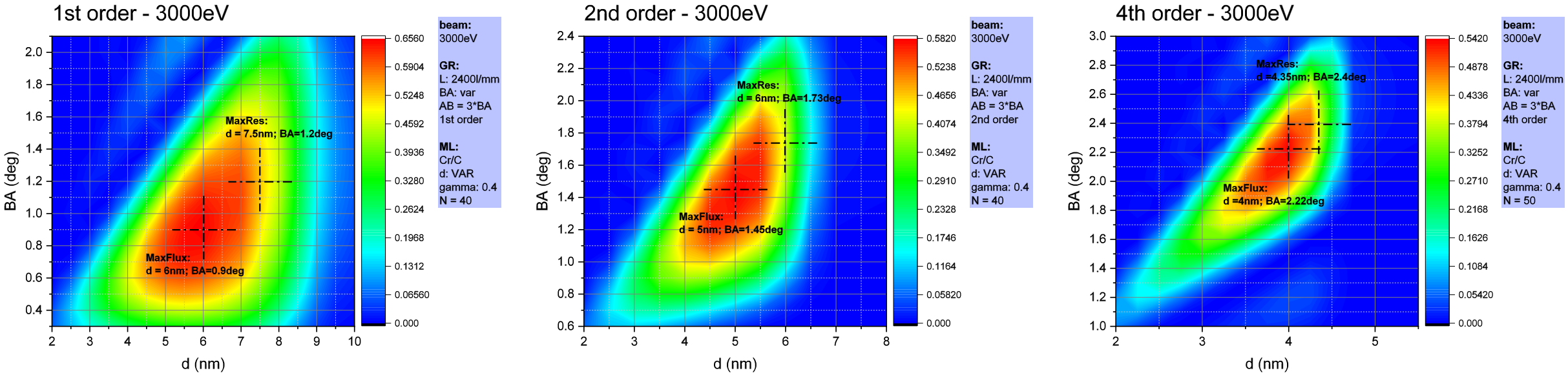
rough estimation of resolution with exit slit of 50 um





ML coated grating selection: Optimization of BA to d-spacing

MLBG – optimization:



MLLG – optimization: