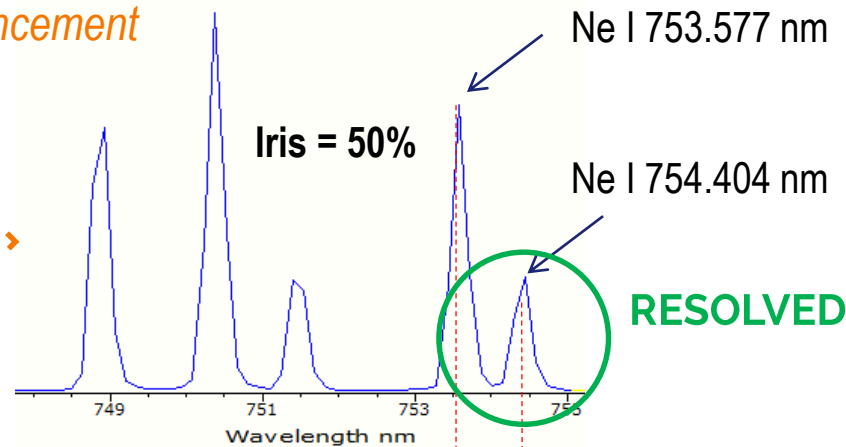
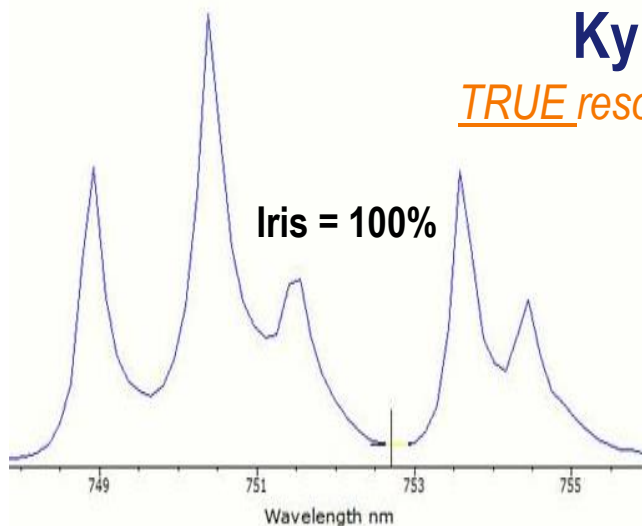


TruRes™ - Spectral resolution enhancement option

TruRes™ – superior resolution of complex spectral features

Kymera 328i

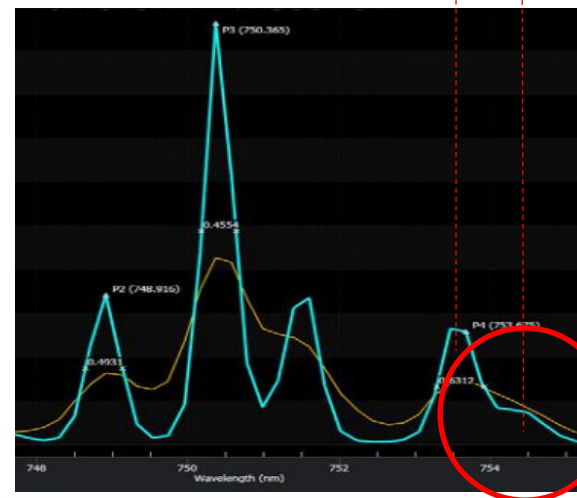
TRUE resolution enhancement



300 l/mm grating
iVac 316 (15 μm pix.),
Full Vertical Binning
Competitor camera
(20 μm pix.)

Competitor 300m spectrograph

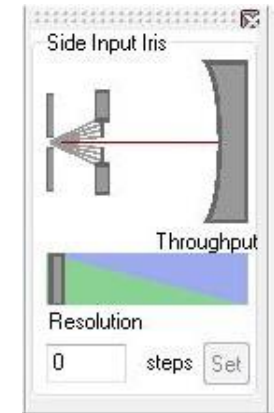
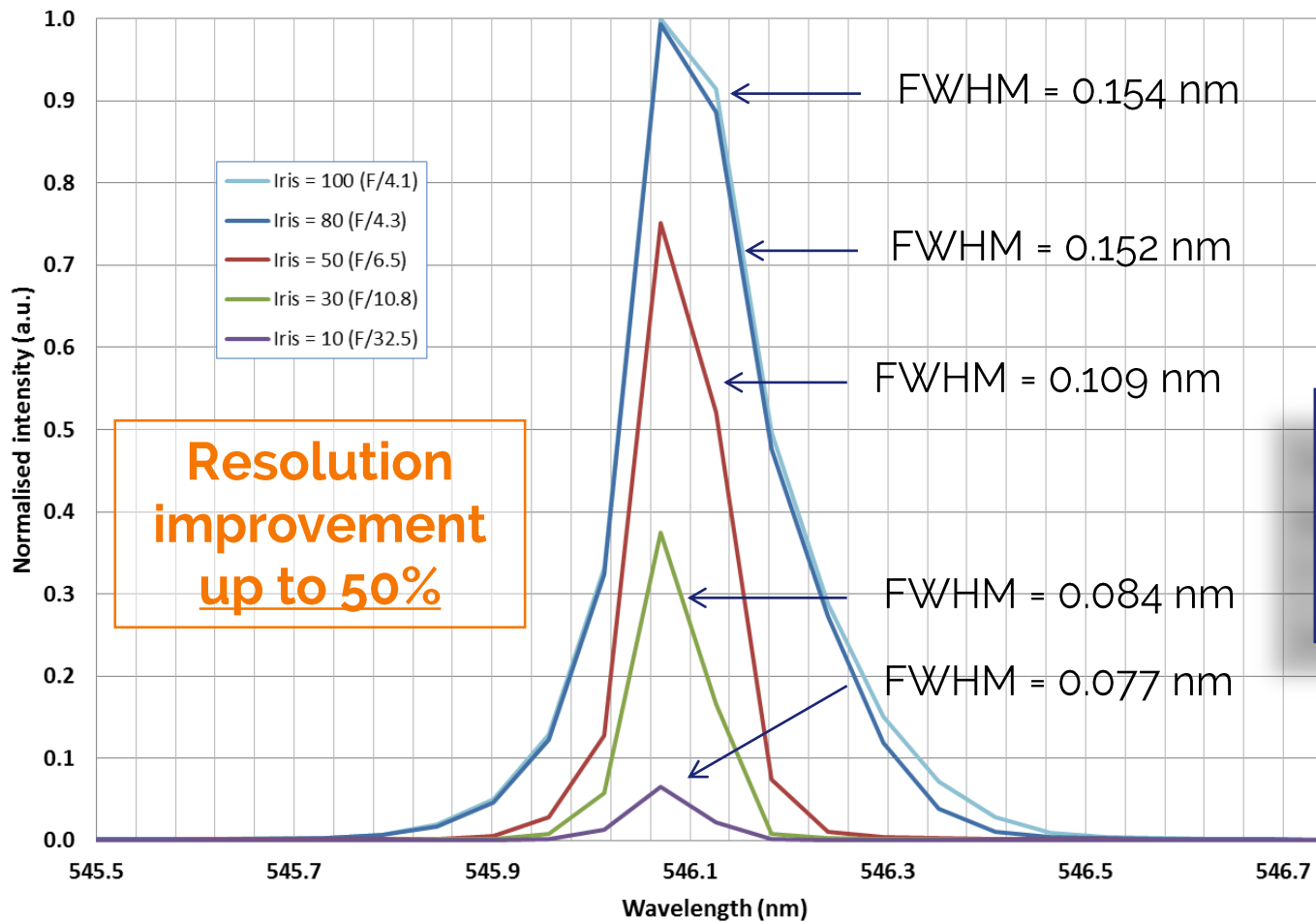
Mathematical
resolution enhancement



**NOT
RESOLVED**

TruRes™ – true resolution enhancement impact

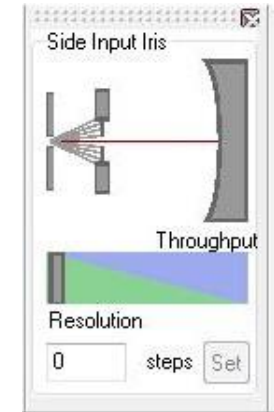
FWHM of Mercury 456.074 nm line vs iris setting



1200 l/mm grating
Newton 920 (26 μm),
Full Vertical Binning
10 μm slit

TruRes™ – true resolution enhancement impact

FWHM of various Mercury lines vs iris setting



1200 l/mm grating
iVac 316 (15 μm), Full Vertical Binning
10 μm slit

Resolution < 0.07 nm (better than 30% improvement)

Kymera/Shamrock resolution comparison

	Grating (l/mm)					
	150	300	600	1200	1800 (Holo)	2400 (Holo)

Kymera 193i

Bandpass (nm)	902	445	215	98	56	46
Resolution (nm)	1.96	0.96	0.47	0.21	0.12	0.10

NEW Kymera 328i

Bandpass (nm)	542	268	131	61	41	29
Resolution (nm)	0.88→0.62	0.44→0.31	0.21→0.15	0.10→0.07	0.06→0.04	0.05→0.04

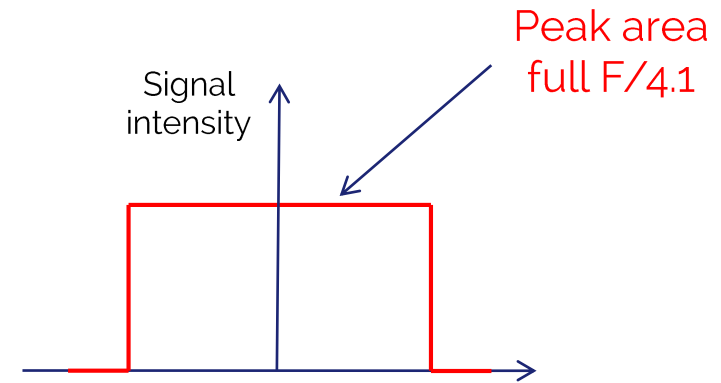
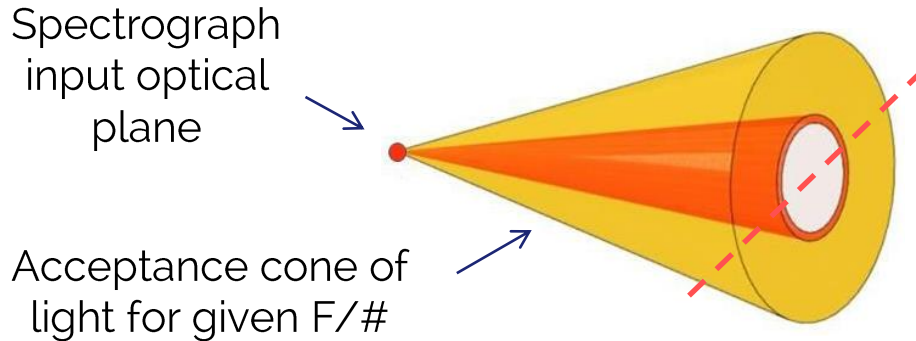
Shamrock 500i

Bandpass (nm)	357	177	86	40	26	19
Resolution (nm)	0.52	0.26	0.13	0.06	0.04	0.03

Shamrock 750

Bandpass (nm)	242	120	59	28	18	14
Resolution (nm)	0.35	0.18	0.09	0.04	0.03	0.02

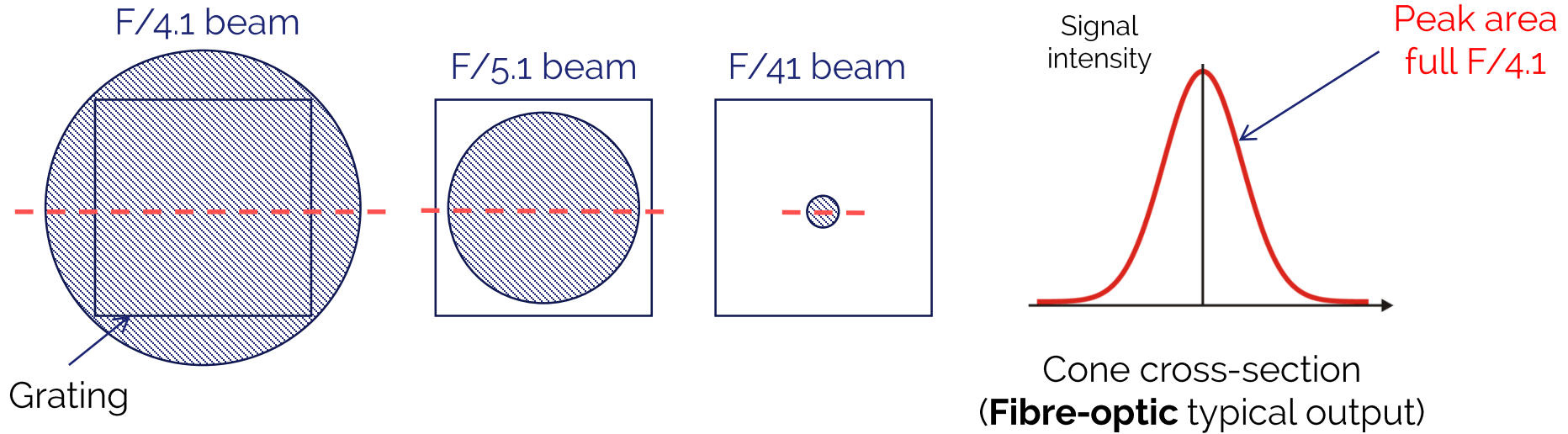
TruRes™ – throughput impact with 'top hat' illumination



Cone cross-section ('top-hat' profile)

Iris position	100	80	50	30	10
F/#	4.1	4.3	6.5	10.8	32.5
NA	0.123	0.117	0.077	0.046	0.012
Cone angle (°)	14.1	13.4	8.8	5.3	1.4
Solid angle (sr)	4.7×10^{-2}	4.3×10^{-2}	1.9×10^{-2}	6.7×10^{-3}	4.5×10^{-4}
Peak area	100%	90%	39%	14%	1%

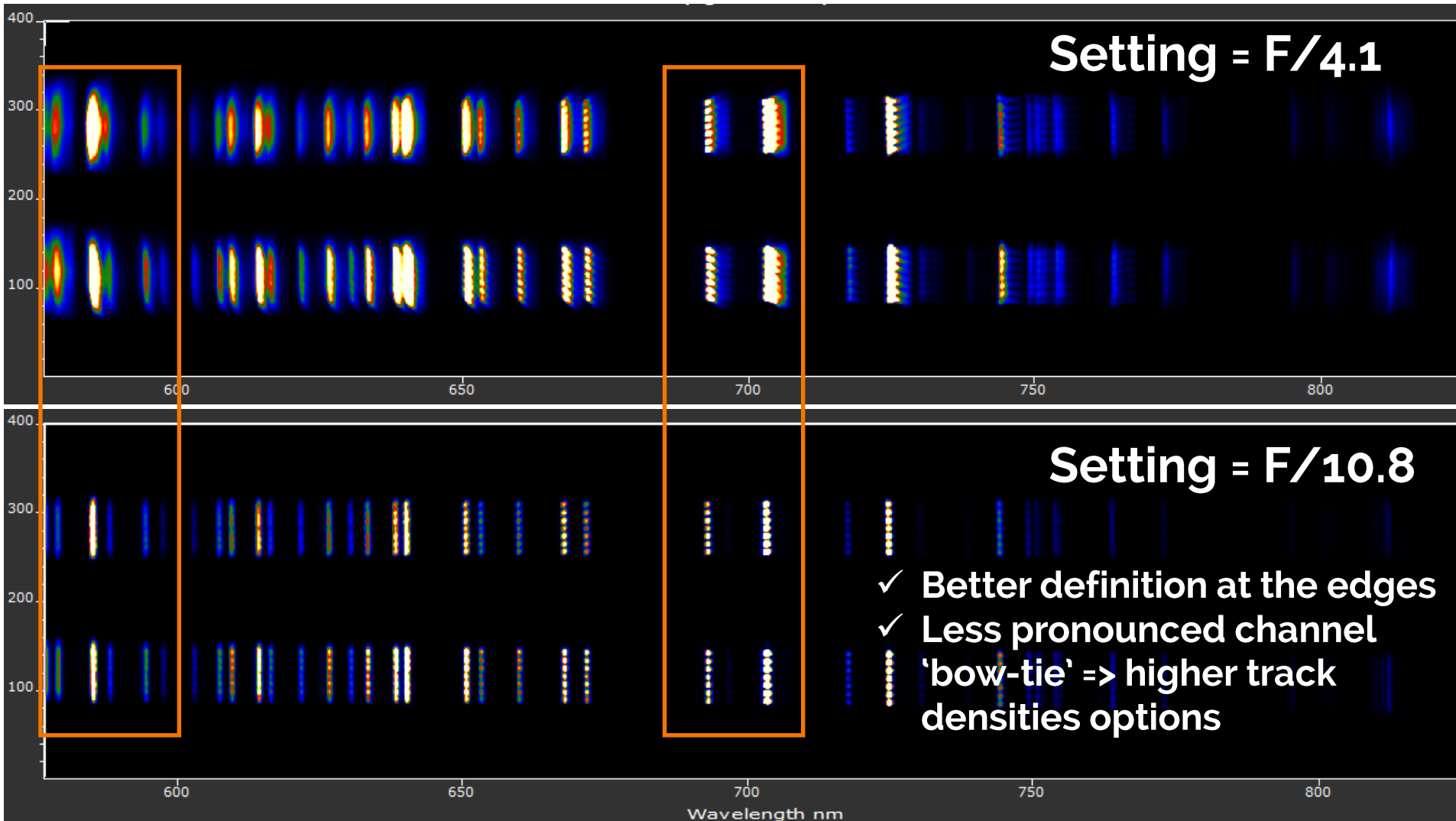
TruRes™ – throughput impact with fibre-optic input



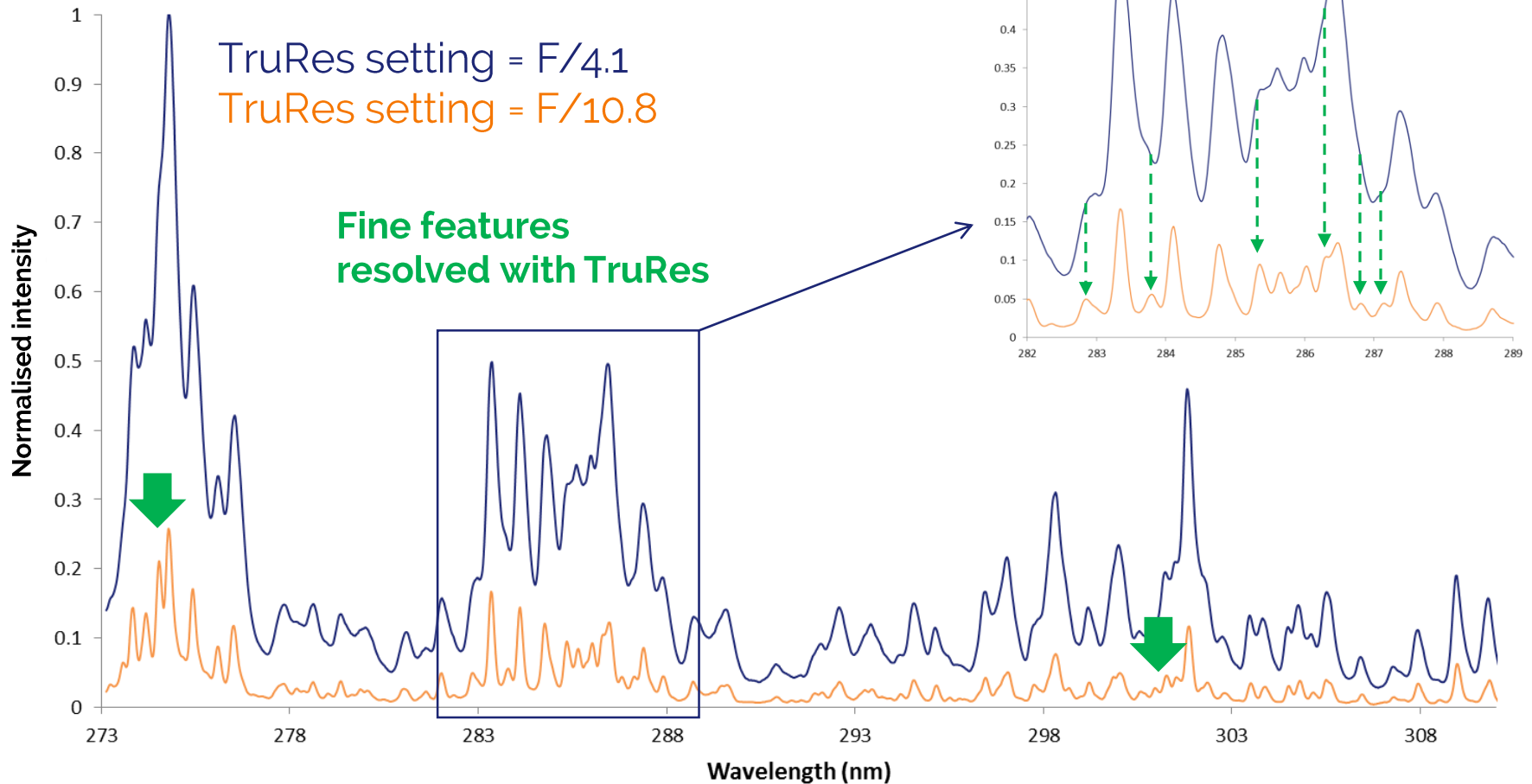
Iris position	100	80	50	30	10
F/#	4.1	4.3	6.5	10.8	32.5
Peak area	100%	80%	42%	20%	6%
Peak intensity	100%	94%	66%	37%	13%
Resolution (nm)*	0.10	0.09	0.08	0.07	0.07

* 1200 l/mm grating, iVac 316 (15 µm pixels), FVB, 10 µm slit

TruRes™ and multitrack performance improvement



Steel sample analysis by LIBS



Courtesy of Dr Vincent Motto-Ros, Institut Lumière Matière (ILM), Lyon University
Setup: Kymera 328i-B1, iStar sCMOS 18U-E4