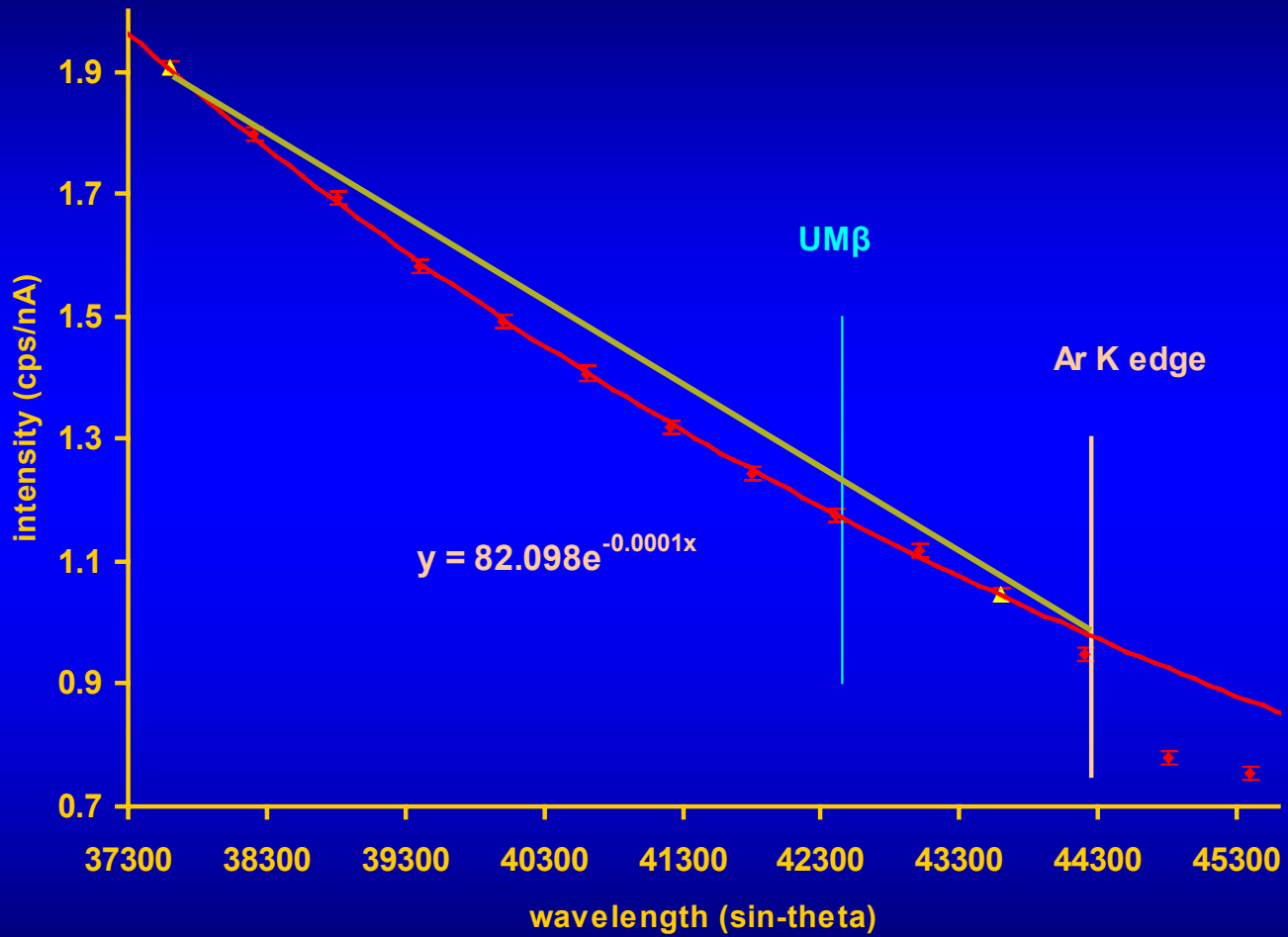


Actinide analysis – U in Th
rich phase

U region on NdPO4 (LPET)

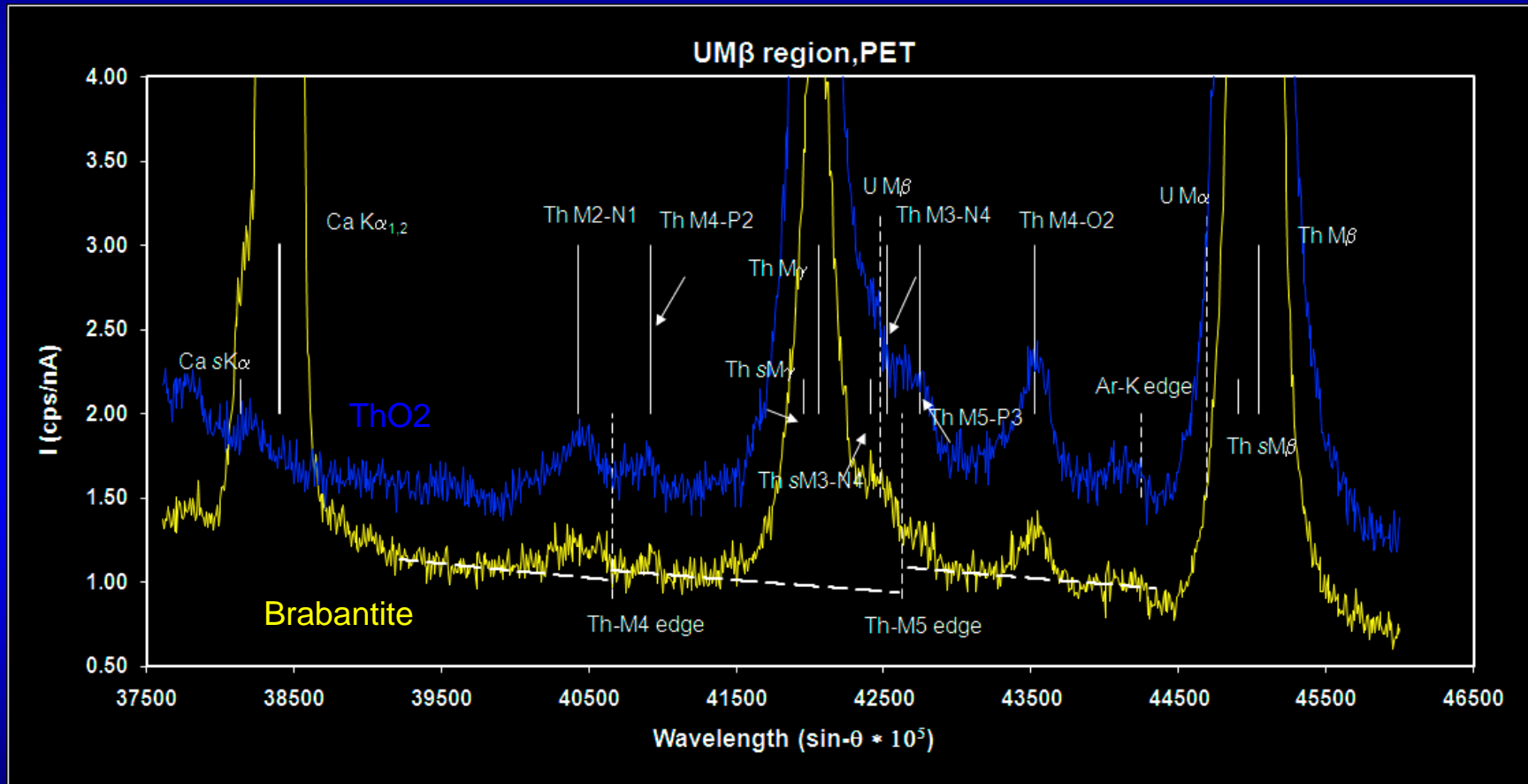


¹E₀= beam energy; U_{opt} is the optimal overvoltage for the most efficient shell ionization (see text for explanation). ²Example representing the most efficient shell ionization

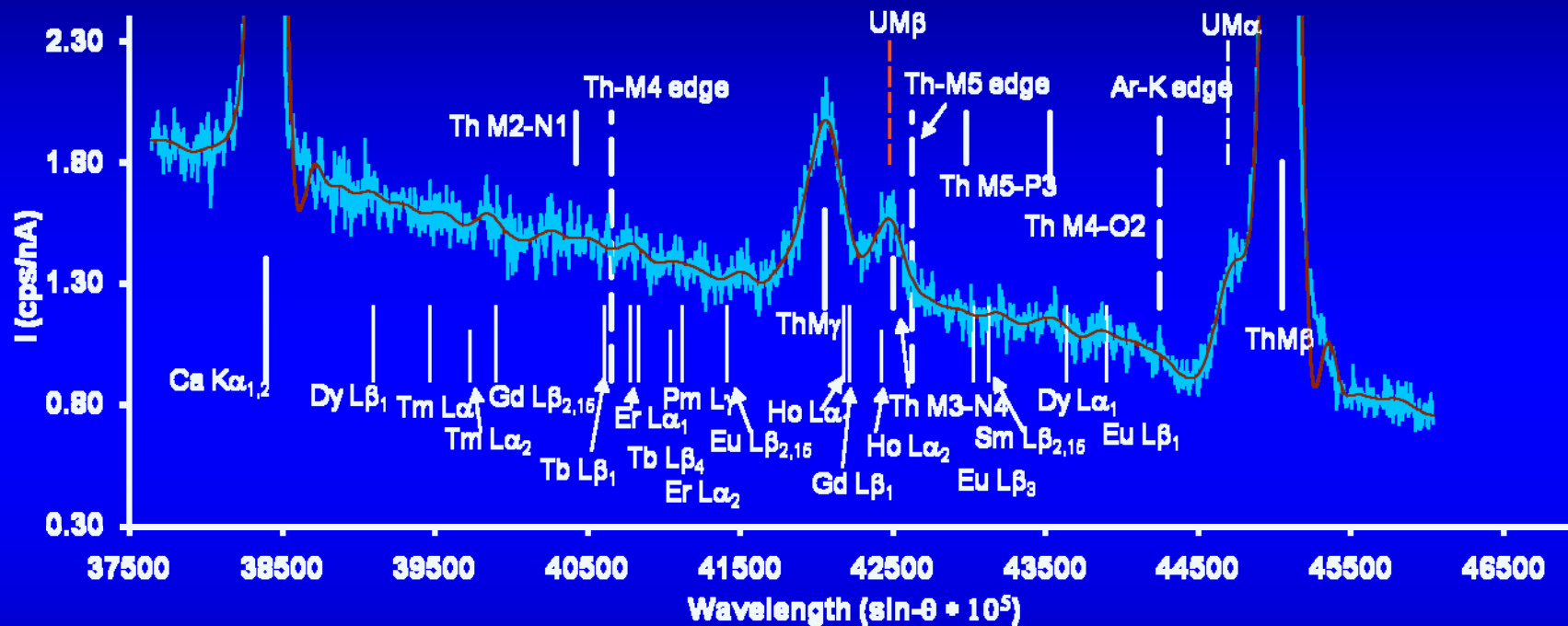
Element	Shell	Electron binding energy (keV)	E ₀ at U _{opt} ¹ (keV)	Characteristic line	Emission energy (keV)
Pb	MV (3d ^{5/2})	2.484	4.97 – 7.45	Mα ₁	2.3455
	MIV (3d ^{3/2})	2.586	5.17 – 7.76	Mβ	2.4427
	LIII (2p ^{1/2})	13.035	26.07 - 39.11	Lα ₁	10.5515
Th	MV (3d ^{5/2})	3.332	6.66 – 10.00	Mα	2.9961
	LIII (2p ^{1/2})	16.300	32.6 – 48.9	Lα ₁	12.6520
U	MV (3d ^{5/2})	3.552	7.10 – 10.66	Mα ₁	3.1708
	MIV (3d ^{3/2})	3.728	7.46 – 11.18	Mβ	3.3367
	LIII (2p ^{3/2})	17.166	34.33 - 51.50	Lα ₁	13.6147
P	K (1s)	2.146	4.29 – 6.44	Kα ₁	2.0137
La	LIII (2p ^{3/2})	5.483	10.97 – 16.45	Lα ₁	4.65097
				Lβ ₂	5.3835
	LII (2p ^{1/2})	5.891	11.78 – 17.67	Lβ ₁	5.0421
Ce	LIII (2p ^{3/2})	5.723	11.45 – 17.17	Lα ₁	4.8402
				Lβ ₂	5.6134
	LII (2p ^{1/2})	6.164	12.33 – 18.49	Lβ ₁	5.2622
Nd	LIII (2p ^{3/2})	6.208	12.42 – 18.62	Lα ₁	5.2304
				Lβ ₂	6.0894
	LII (2p ^{1/2})	6.722	13.44 – 20.17	Lβ ₁	5.7216
Yb ²	LIII (2p ^{3/2})	8.944	17.89 – 26.83	Lα ₁	7.4156
				Lβ ₂	8.7588
	LII (2p ^{1/2})	9.978	19.96 – 29.93	Lβ ₁	8.4018

Th interferences on U-M region

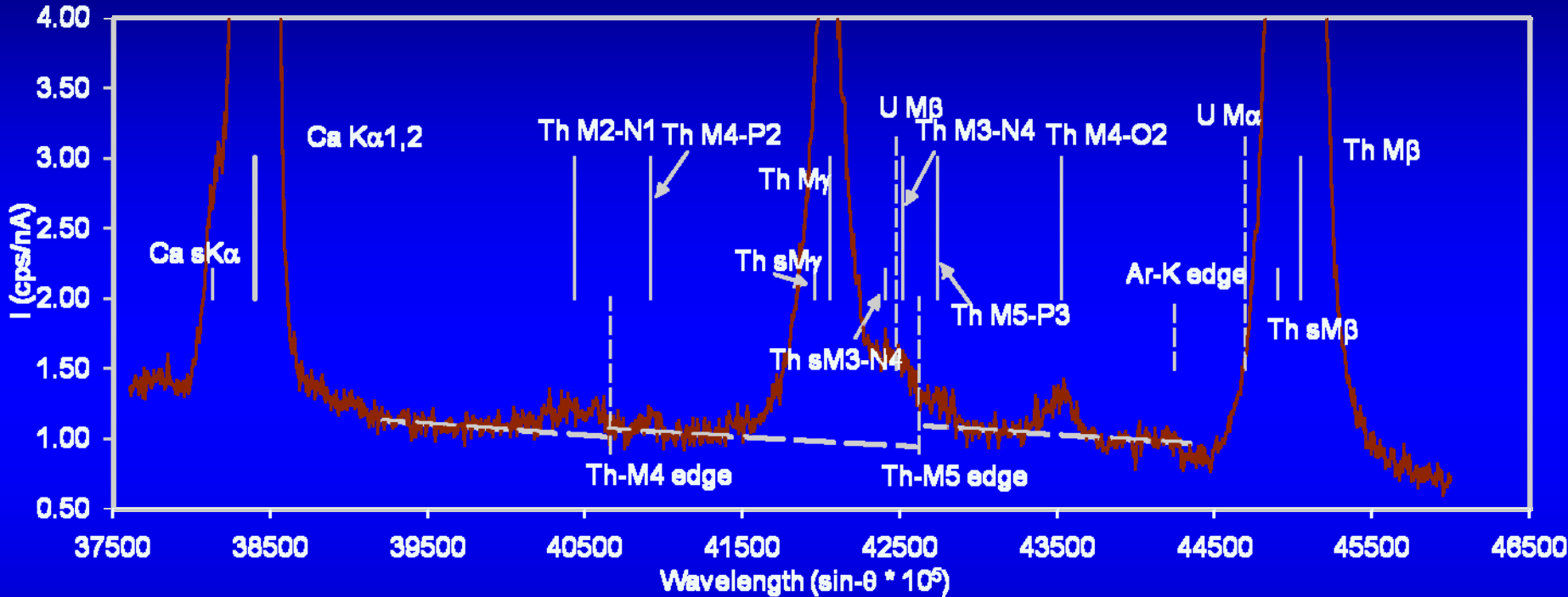
Th absorption edges significant for high Th monazite



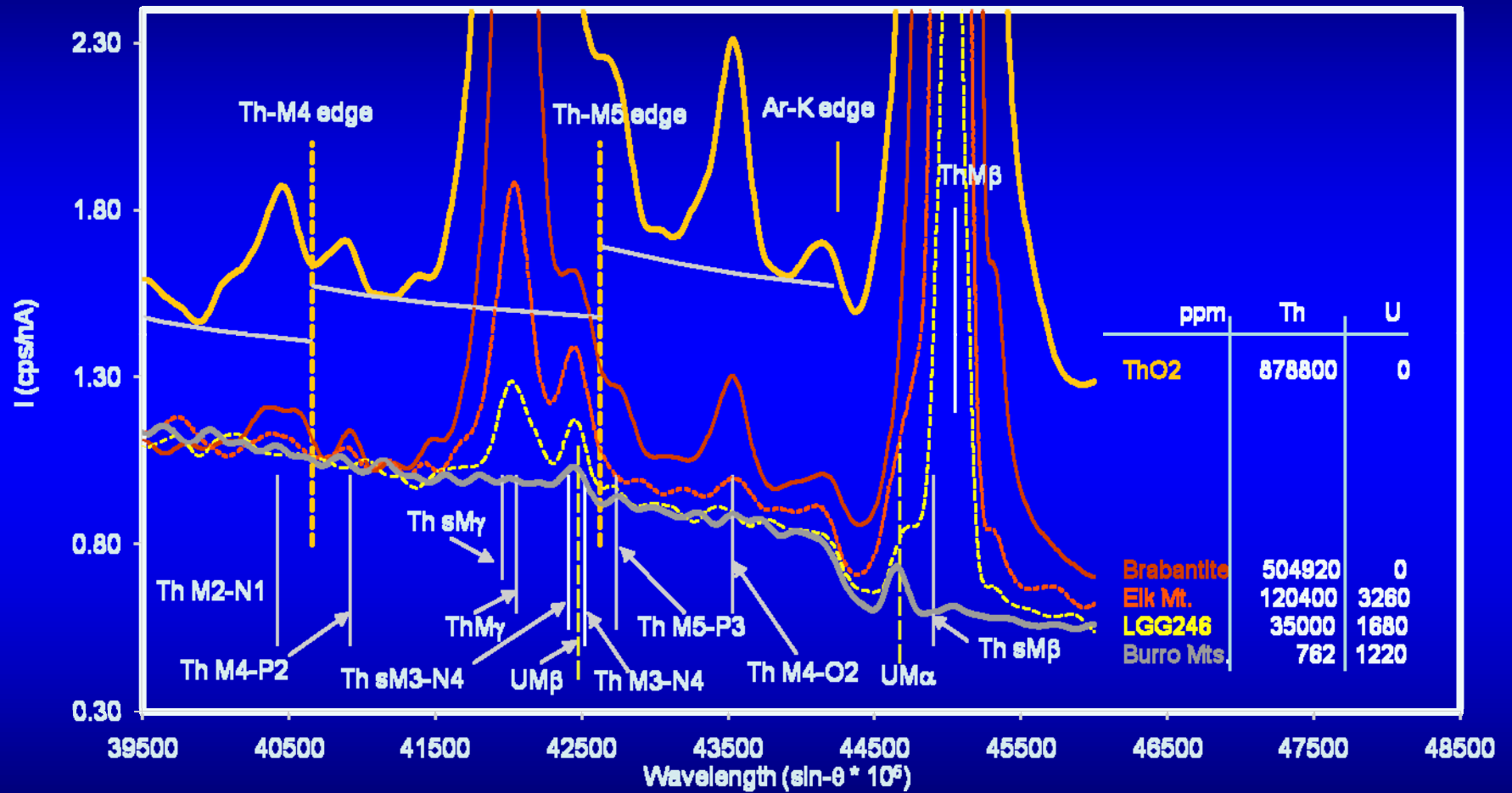
Monazite GSC 8153 U-region (PET)



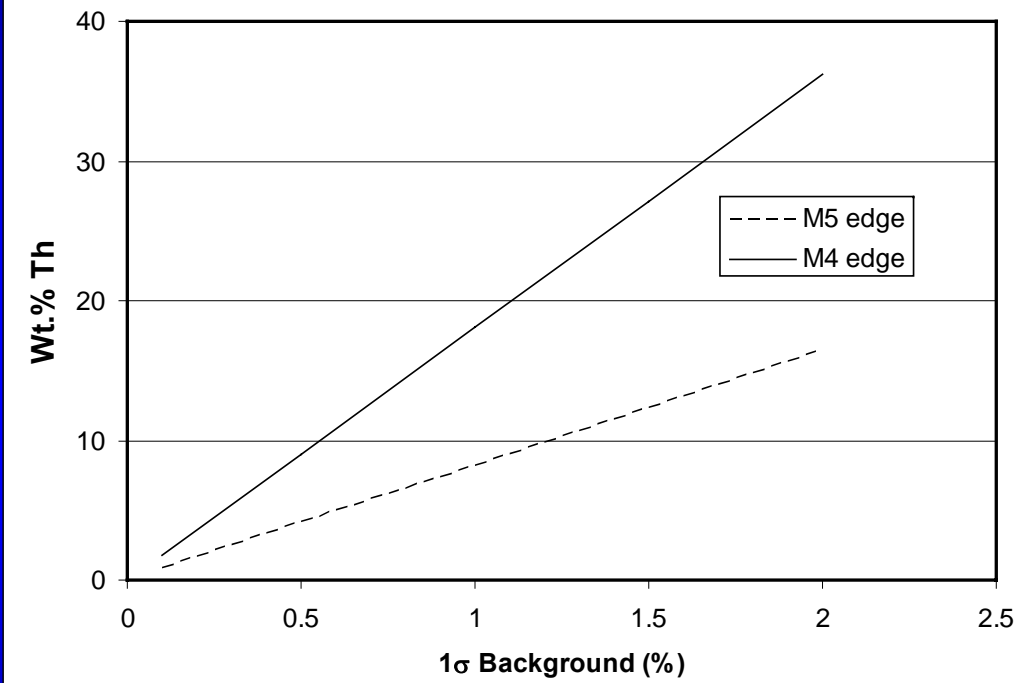
CaTh(PO4)2



U region (PET) vs. Th

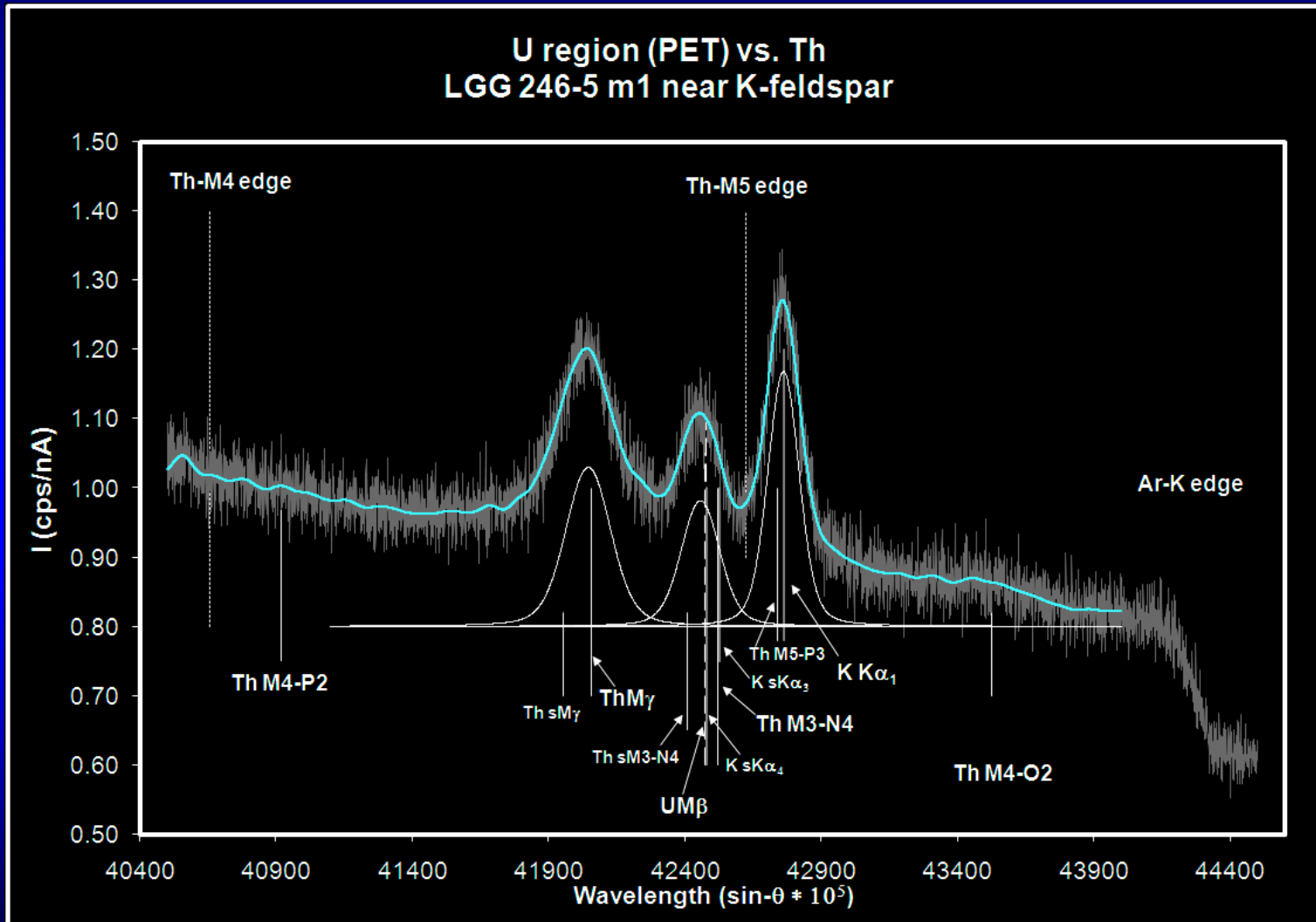


U (PET) region - Th absorption edges

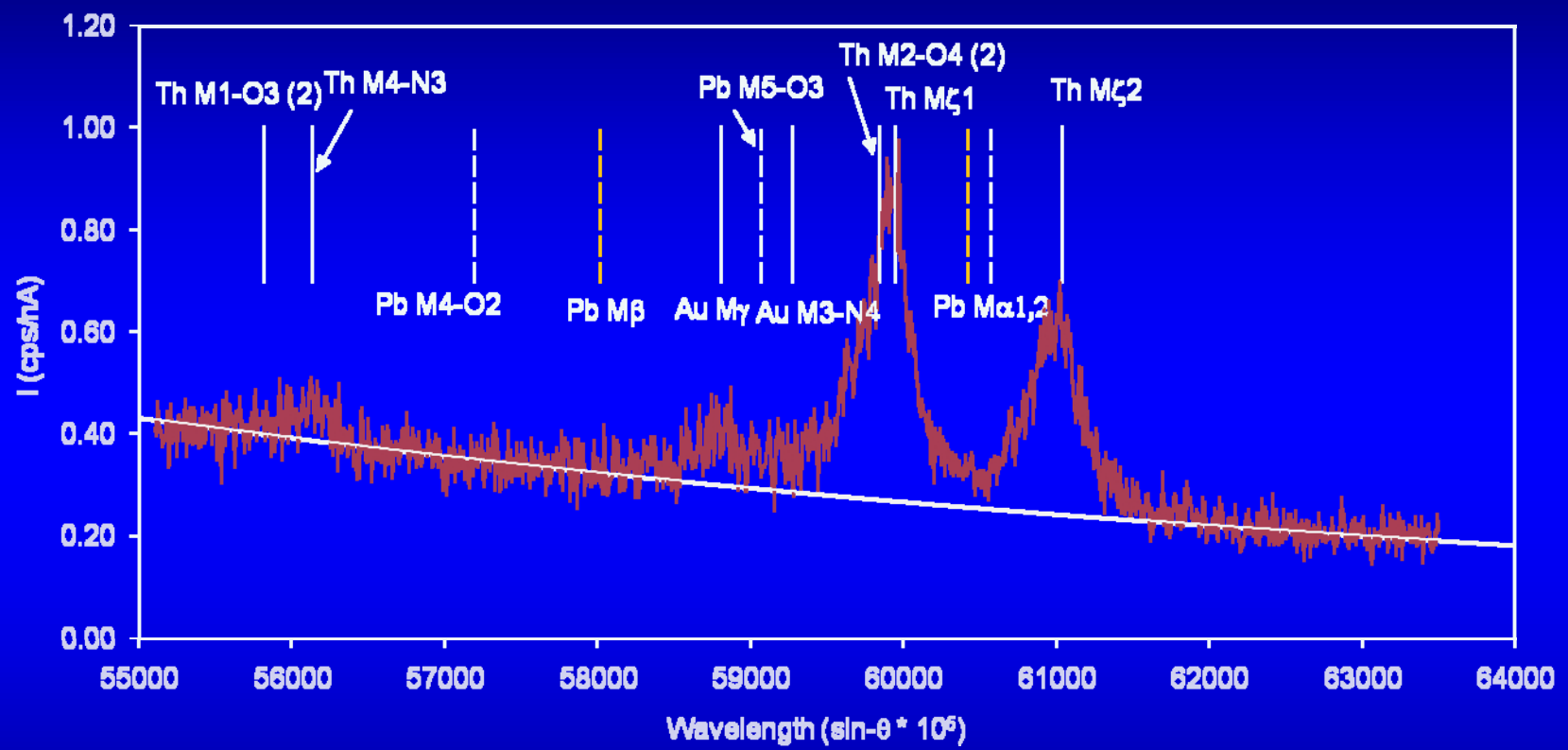


Interference effects

The case of mutual interference of first order lines



Pb region - Brabantite



M ζ 1 = MV-NIII

M ζ 2 = MV-NII

