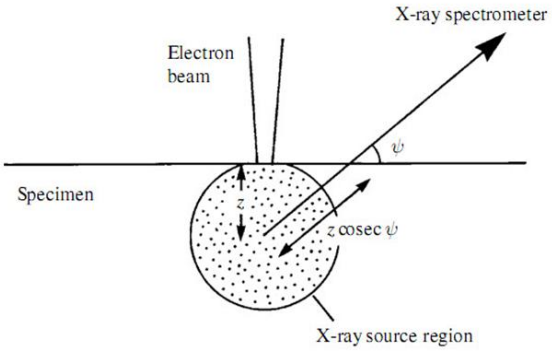
Even though now days all corrections are rapidly carried with the PC programs, the analyst needs to understand their principles in order to ensure the used ZAF assumptions are appropriate to the analysis being carried out!

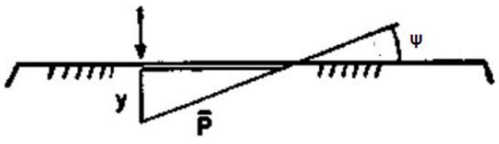
Since ZAF factors are dependent on the composition of the specimen (the mean atomic weight), which is not known until the corrections have been calculated, an iterative procedure is used (repeated until to reach a constant value of Ci).

Absorption correction A,

Characteristic X-rays travel a certain distance within the specimen before emerging. The resulting absorption depends on the mass absorption coefficient μ/ρ, take-off angle ψ, primary beam energy Eo, critical excitation energy Ec, mean atomic number $\bar{Z}$ and mean atomic weight $\bar{A}$, as shown in below schematic figures,



X-rays produced at depth z travel distance z cosec within the specimen before emerging (is the X-ray take-off angle).



$\bar{P} = y \csc \psi$

for Al (Z=13)

E(kV)	ψ(deg)	y(μm)	P̄(μm)
10	15	0.3	1.16
10	60	0.3	0.35
30	15	2.0	7.7
30	60	2.0	2.3