Cabibbo - Kobayashi - Maskawa Matrix

Parameters : $\boxed{\lambda, A, \rho, \eta}$ (Wolfenstein)

	d	s	b
u	$1-\frac{\lambda^2}{2}$	λ	V_{ub}
c	$-\lambda$	$1-\frac{\lambda^2}{2}$	V_{cb}
t	V_{td}	V_{ts}	1

$\lambda = 0.22 = \sin\theta_c$

$V_{cb} = A\lambda^2 + O(\lambda^8)$

$V_{ts} = -A\lambda^2 + O(\lambda^4)$

$(A \approx 0.82 \pm 0.06)$

$$V_{ub} \equiv A\lambda^3(\rho - i\eta) \qquad V_{td} = A\lambda^3(1 - \bar{\rho} - i\bar{\eta})$$

$$\bar{\rho} = \rho\left(1-\frac{\lambda^2}{2}\right) \qquad \bar{\eta} = \eta\left(1-\frac{\lambda^2}{2}\right)$$

(AJB, Lautenbacher, Ostermaier, 94)

$$R_b \equiv \sqrt{\bar{\rho}^2 + \bar{\eta}^2} = \left(1-\frac{\lambda^2}{2}\right)\frac{1}{\lambda}\left|\frac{V_{ub}}{V_{cb}}\right|$$

Circle around $(\bar{\rho}, \bar{\eta}) = (0,0)$

$$R_t \equiv \sqrt{(1-\bar{\rho})^2 + \bar{\eta}^2} = \frac{1}{\lambda}\left|\frac{V_{td}}{V_{cb}}\right|$$

Circle around $(\bar{\rho}, \bar{\eta}) = (1,0)$