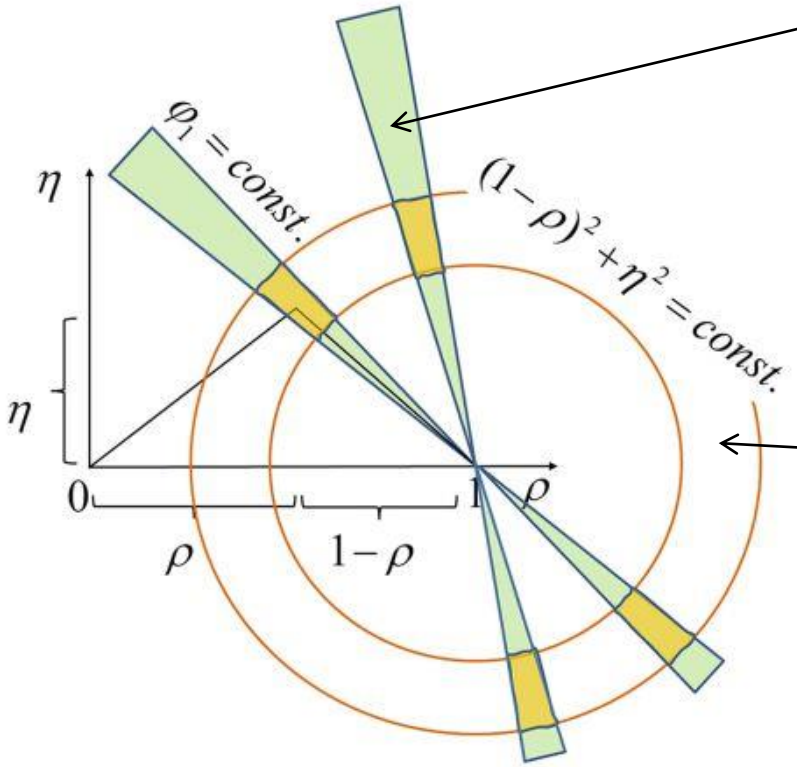
UT experim. tests

$$S = \sin(2\varphi_1) \rightarrow S_0 \pm \sigma_S$$



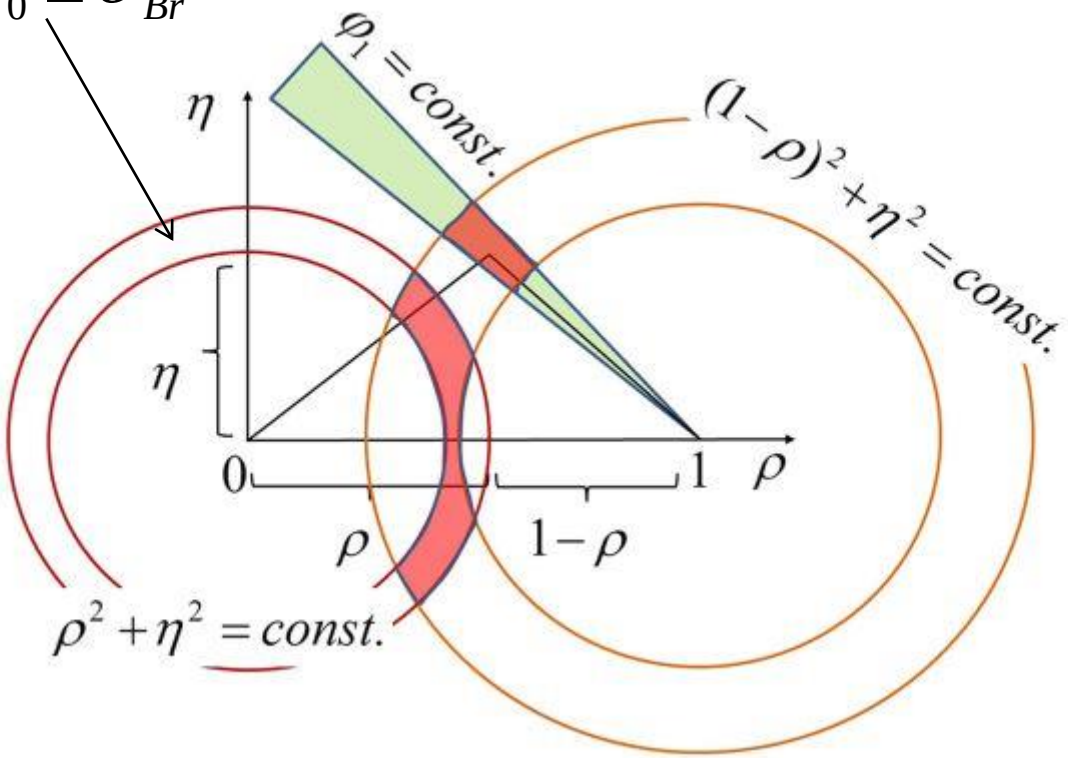
$$\Delta m_{B_d} = (1-\rho^2)+\eta^2$$

$$\rightarrow \Delta m_{B_d\,0} \pm \sigma_{\Delta m}$$

UT experim. tests

$$Br(B_d^0 \to \pi \ell \nu) \propto \left|V_{ub}\right|^2 = \rho^2 + \eta^2$$

$$\to Br_0 \pm \sigma_{Br}$$

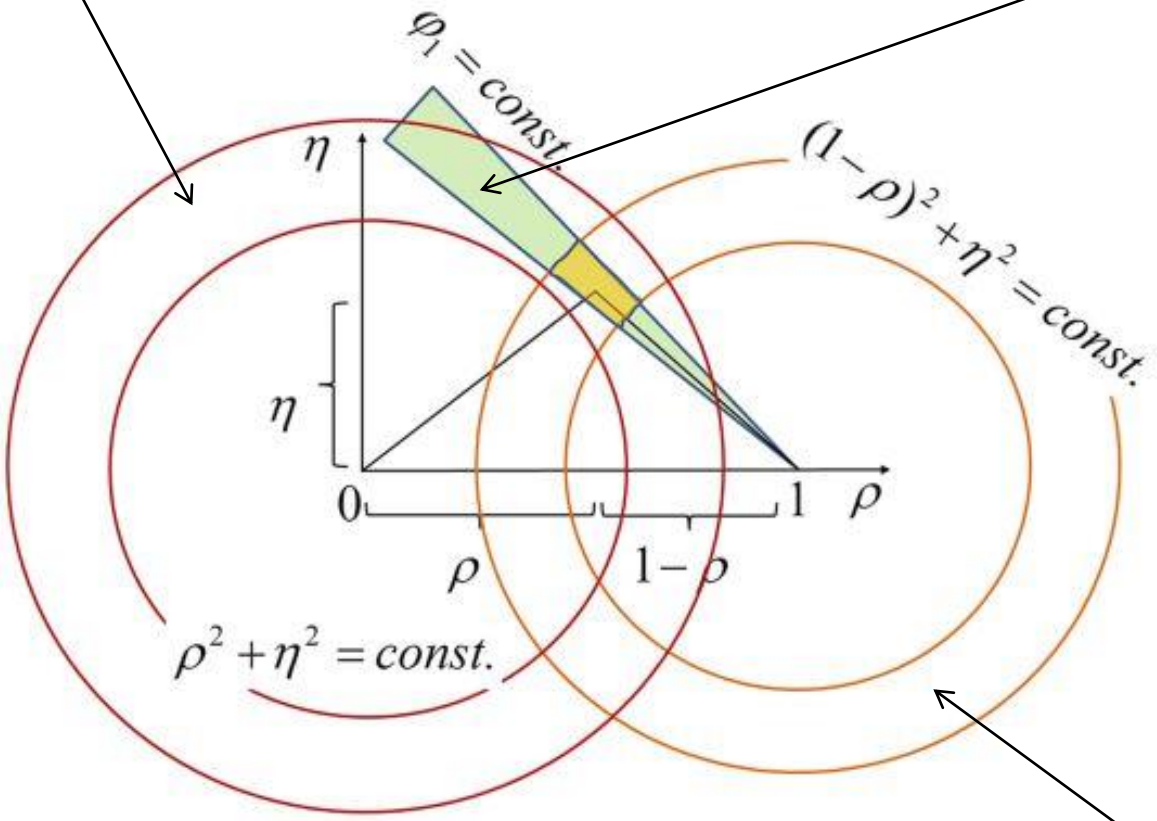


UT experim. tests

$$Br(B_d^0 \to \pi \ell \nu) \propto |V_{ub}|^2 = \rho^2 + \eta^2$$

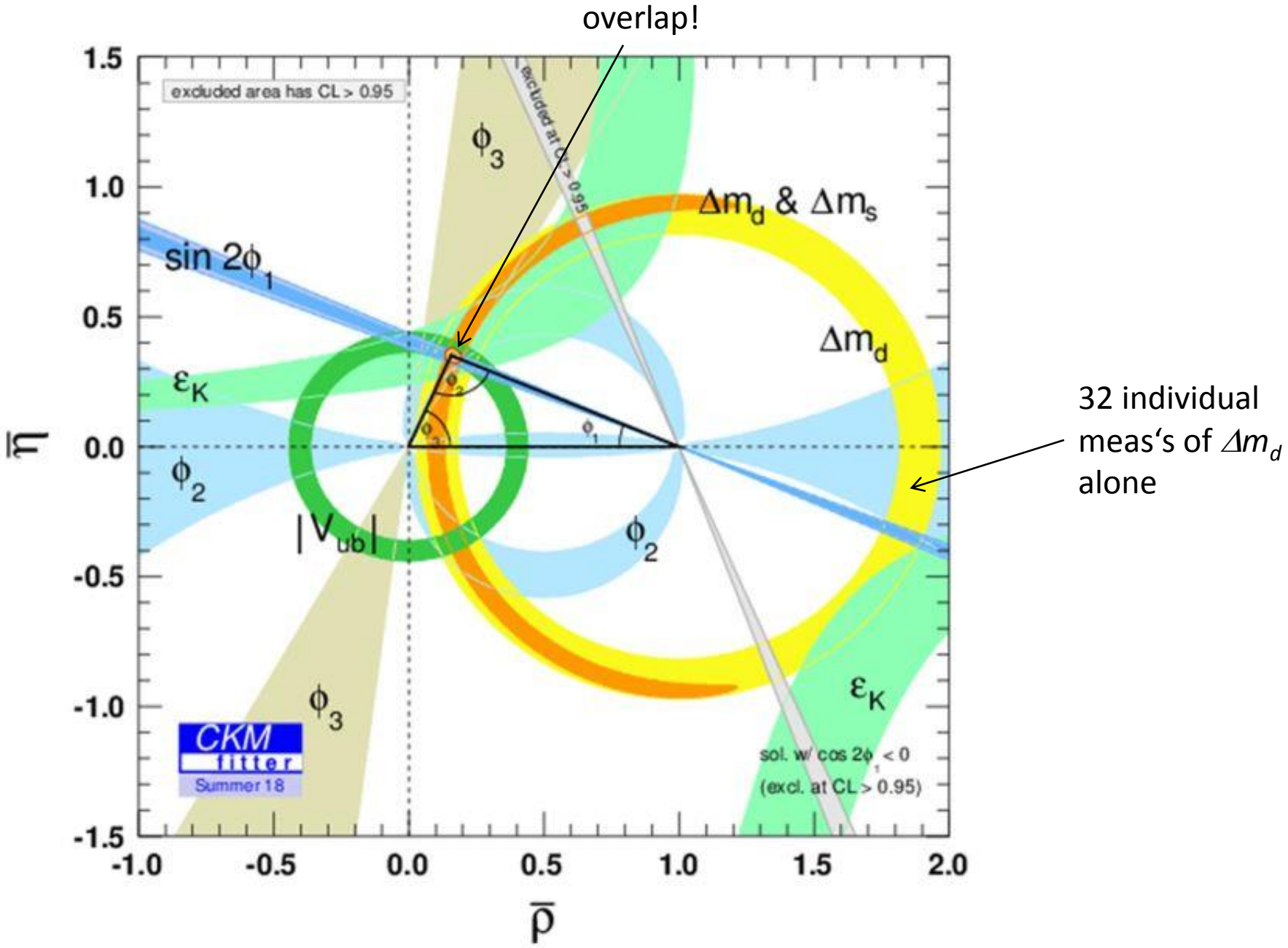
$$\to Br_0 \pm \sigma_{Br}$$

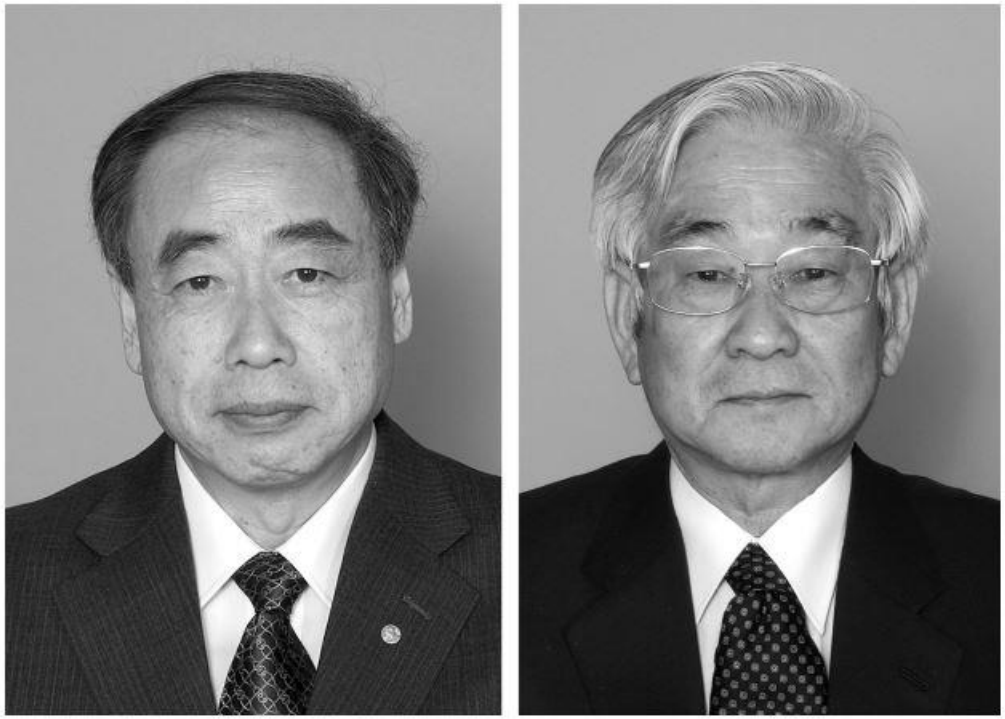
$$S = \sin(2\varphi_1) \to S_0 \pm \sigma_S$$



$$\Delta m_{B_d} = (1-\rho^2) + \eta^2$$

$$\to \Delta m_{B_d\,0} \pm \sigma_{\Delta m}$$


overlap!
excluded area has CL > 0.95
excluded at CL > 0.95
ϕ_3
Δm_d & Δm_s
sin $2\phi_1$
Δm_d
ε_K
ϕ_2
$|V_{ub}|$
ϕ_2
ϕ_3
ε_K
CKM fitter
Summer 18
sol. w/ cos $2\phi_1 < 0$
(excl. at CL > 0.95)
$\bar{\eta}$
$\bar{\rho}$
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
32 individual meas's of Δm_d alone



Nobel prize in
Physics 2008
(with Y. Nambu)