CP violation in $B\to\pi\pi$ and $B\to K\pi$

- Indirect: Interference in $B^0\to\pi^+\pi^-$ due to $B\bar{B}$ mixing. Determine CKM angle α.
- Direct: Interference between spectator and penguin diagrams. Measure CKM angle γ by using $B^0\to K^+\pi^-$. $\mathcal{A}_{CP} \equiv \frac{N_{K^+}-N_{K^-}}{N_{K^+}+N_{K^-}} \propto \sin\gamma \sin\delta$ (δ is the strong phase)
- Attempt to measure γ by overcoming uncertainty in strong phase:
  - ⋆ Triangle relations among three measured rates complicated by EW penguins (Gronau, Hernandez, London and Rosner) or OZI-suppressed hairpin diagrams (Deshpande&He).
  - ⋆ Quadrangle relation (Gronau&Rosner): measure rates for $\pi^\circ K^+$, π^+K^0, ηK^+, $\eta' K^+$ and charge conjugates.