Wiggler Field Calculations

– Geometrical Tolerances and Skew Quad Component –
– New Field Calculation Method –

1. Geometrical Errors and Skew Quad Component

- Compare 3-pole model to 7-pole model

  ⇒ Quantitative estimate of effect of measured skew quad component

- Raise central pole by 100 mils (Mistake here! See talk of 25 October 2002)

  ⇒ Skew quad component produced and horizontal kick also changed

- Widen end pole gap by ± 100 mils

  ⇒ No skew quad component produced

2. Tested New Field Calculation Method in OPERA

- Old: Use mesh interpolation for magnetization contribution and element integration for current density contribution
- New: Use element integration for both

  ⇒ New calculation takes ten times longer !

  ⇒ Differences are bigger than expected ($\gtrsim$50 G)

  ⇒ Curl and divergence criteria much better satisfied

  ⇒ Next step: see if fit quality is improved