Wiggler Field Calculations

– Linear Integrals for SkQuad Components –
– Improved Field Calculation and Fit –
– 8-pole Model (1/8) with Dowel Pin Holes –

1. **Linear Integrals Compared to ST Measurement of SkQuad Component**
   - Integral of B_X over Z versus X

     ⇒ Raising central pole/coil/yoke by 100 mils - agrees

     ⇒ Elongating upper central coil by 100 mils - agrees even better

2. **Improved Field Calculation and Fit (see talk of 18 Oct 02)**
   - Now avoid all mesh interpolation and use integrals over current and magnetization elements only

     ⇒ Table calculation now requires 25 hours rather than 5 hours

     ⇒ Tails in Y component of curl removed

     ⇒ Significant improvement in fit residuals

     ⇒ DLR tracking through 7-pole 2.1 T fit result now of acceptable quality

3. **8-Pole Model (1/8) with dowel pin holes works!**
   - Mesh in hole region sufficiently fine. Results next week (1/8 only)

4. **Struggling with mesh for 7-pole 8/8 model**
   - At present cannot simulate skew quad errors for Wiggler 2