Homework Exercises for
QCD and Collider Physics
2005/2006

Exercises for Lecture 3 (23. Nov 2005)

α_s calculation and Renormalization Group Equation (RGE):

- Use RGE to show that scheme dependence in α_s enters only at 3-loops. Use $\alpha_s' = (1 + c\alpha_s)\alpha_s$ and apply RGE.

Calculation of Equivalent Photon Approximation:

- calculate EPA keeping terms with electron mass up to m_e^2. Hint: derive formula in terms of $\hat{s} - m_e^2$ etc.

- calculate Q_{min}^2 for EPA, keeping terms with electron mass.