



Strong field effects on physics processes at the Interaction Point of future linear colliders

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Future linear colliders will be precision machines which, among other things, will closely study the Higgs sector, provide tighter bounds on electroweak observables and look for new physics via polarised beams. The luminosity requirements of such machines entail very intense lepton bunches at the IP with associated strong electromagnetic fields. These strong fields not only lead to obvious phenomena such as beamstrahlung, ISR and FSR, but also affect every particle physics process via virtual exchange with the bunch fields. For precision studies, strong field effects have to be understood to the sub-percent level. Strong external field effects can be taken into account exactly via the Furry interaction Picture. Within this picture, significant theoretical and phenomenological development is in progress and here we summarise the current state of play, presenting new exact solutions for overlapping relativistic charge bunch fields, cross-sections calculations for generic two vertex Furry picture processes, and the generation of processes via a new software package - IPstrong.

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