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Spin tracking at Future e+e- Colliders

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In order to exploit the full potential of proposed future high-energy electron-positron colliders, precise knowledge of the beam polarization is required as it evolves throughout the entire machine. Here we discuss global spin tracking efforts in the ILC design from source to Interaction Point. Numerical results are presented for the latest International Linear Collider (ILC) and Compact Linear Collider (CLIC) machine parameters. A GEANT model that transports spin is used for the positron sources. Depolarisation studies in the ring and through the spin rotators shows that polarization is maintained within budget. Spin tracking simulations through the Beam Delivery System reveals the importance of orbit correction and nanometer stabilization of final focus quadrupoles. Interaction Point beam-beam effects lead to significant depolarisation, the knowledge of which is obtained through a combination of custom designed polarimeters and analysis of W pair production data. Progress towards a global simulation package which incorporates specific spin tracking codes is discussed.

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