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MuSim, a Graphical User Interface for Multiple Simulation Codes

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MuSim is a user-friendly program designed to interface to many different particle simulation codes, regardless of their data formats or geometry descriptions. It presents the user with a compelling graphical user interface that includes a flexible 3-D view of the simulated world plus powerful editing and drag-and-drop capabilities. All aspects of the design can be parameterized so that parameter scans and optimizations are easy. It is simple to create plots and display events in the 3-D viewer, allowing for an effortless comparison of different simulation codes. Simulation codes: G4beamline 3.02, MCNP 6.1, and MAD-X; more are coming. Many accelerator design tools and beam optics codes were written long ago, with primitive user interfaces by today's standards. MuSim is specifically designed to make it easy to interface to such codes, providing a common user experience for all, and permitting the construction and exploration of models with very little overhead. For today's technology-driven students, graphical interfaces meet their expectations far better than text-based tools, and education in accelerator physics is one of our primary goals.

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