

Synergies between different disciplines for the European Particle Physics Strategy Update

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One overarching objective of science is to further our understanding of the universe, from its early stages to its current state and future evolution. This depends on gaining insight on the universe's most macroscopic components, for example galaxies and stars, as well as describing its smallest components, namely elementary particles and nuclei and their interactions. It is clear that this endeavor requires combined expertise from the fields of astroparticle physics, particle physics and nuclear physics. Pursuing common scientific drivers also require mastering challenges related to instrumentation (e.g. beams and detectors), data acquisition, selection and analysis, and making data and results available to the broader science communities. Joint work and recognition of these "foundational" topics will help all communities grow towards their individual and common scientific goals. This contribution presents the work that various communities and experiments are doing to solve one of the many common challenges faced by particle physics and astrophysics: the necessity of dealing with large, sometimes heterogeneous datasets and derive insight from them in short periods of time.

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