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PDGdb.jl Particle Database wrangling

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PDGdb.jl is a Julia module designed for seamless interaction with the Particle Data Group (PDG) SQLite database. This package presents a straightforward interface, enabling users to access and query the comprehensive particle physics data stored in the public PDG database, including their properties and decay modes recorded in the table.

The public PDG database, a compilation of five databases in SQLite format, is inherently intricate. This complexity arises from its vastness and the historical accumulation of data contributed by hundreds' encoders worldwide over several decades. A notable challenge is the presence of hadronic resonances within isospin multiplets. These resonances, while sharing most properties, are assigned the same PDG identification number (pdgid).

PDGdb.jl stands out as a collection of tailored data-frame tools, facilitating efficient data manipulation and exploration. The package provides utilities for particle search, retrieval of particle properties, and the extraction of specific information.

When compared to other related packages, such as the Particles from scikit and Corpuscles.jl, PDGdb.jl offers data in its full complexity. Users can access all recordings related to measurements on particle-decay modes. While the PDG Python API interacts with the same database, it does so in a more sophisticated manner, focusing on reliable information but potentially limiting exploratory aspects.

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