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Exploring non-implausible domain of low-energy constants in delta-full chiral effective field theory with history matching

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Recent breakthroughs in quantum many-body methods, computing, and emulators enabled us to statistically investigate nuclear systems and nuclear interactions. We employed a history matching approach to explore the low-energy constants (LECs) domain in delta-full chiral effective field theory. Different constraints such as scattering phase shift and few-body observables are iteratively incorporated into the history matching procedure to reduce the parameter domain. Our results revealed strongly correlated pairs of LECs and highlighted the LECs that remain poorly constrained even after the final wave of history matching.

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