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FlameNEST: Explicit Profile Likelihoods with the Noble Element Simulation Technique

Thursday 5 May 2022 13:00 (20 minutes)

We present FlameNEST, a framework providing explicit likelihood evaluations in noble element particle detectors using data-driven models from the Noble Element Simulation Technique. FlameNEST provides a way to perform statistical analyses on real data with no dependence on large, computationally expensive Monte Carlo simulations by evaluating the likelihood on an event-by-event basis using analytic probability elements convolved together in a single TensorFlow multiplication. Furthermore, this robust framework creates opportunities for simple inter-collaborative analyses which will be fundamental for the future of experimental dark matter physics

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