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Systematic mapping of $U(1)_{L_e-L_{mu}-L_{tau}}$ flavor model via reinforcement learning

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Recent studies actively apply machine learning to the exploration of flavor physics. In analyzing the flavor structure of the lepton sector, we apply reinforcement learning to a $U(1)$ flavor model with $L_e - L_{mu} - L_{tau}$ charges. By testing multiple architectures to explore charge combinations, we develop a strategy to efficiently achieve high-precision solutions. It turns out that the proposed approach successfully finds parameter sets that reproduce the observed lepton masses and mixing angles.

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