Constraining New Physics in Lepton Flavor Universality\textsuperscript{1}
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National Lab, ATLAS, LBNL THEORY TEAM — Searching for new physics bey-
ond the Standard Model at high energy colliders requires an enormous investment
in resources and time. Frequently these searches are applicable to test a broader
range of theoretical models than they were originally designed to. The reinterpre-
tation of experimental results imparts a broader impact to a given search while not
requiring the further reprocessing of data, nor the further investment of resources.
Our research presents the implementation of a newly developed software framework
for reinterpretation, ATOM, the Automated Testing of Models. ATOM was utilized
to reinterpret Z', W' and leptoquarks searches from the ATLAS experiment. Be-
cause of recent anomalies in lepton flavor universality measurements in heavy flavor
decays, an evaluation of theoretical models that seek to account for these anomalies
is of interest to the particle physics community. ATOM was used to evaluate vi-
able models that endeavor to explain these heavy flavor anomalies by testing their
relative correlation with experimental data from ATLAS.

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