Abstract Submitted
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E_6 **grand-unification for a Dark Energy model** PAOLA MOSCONI,
P.Q. HUNG, University of Virginia — The unification of a recently proposed model
for Dark Energy and Dark matter [1], based on an unbroken gauge group $SU(2)_Z$,
with the Standard model (SM) is presented. The unifying group is E_6 and the
symmetry breaking pattern takes the unusual route $E_6 \rightarrow SU(2)_Z \otimes SU(6) \rightarrow$
$SU(2)_Z \otimes SU(3)_c \otimes SU(3)_L \otimes U(1)_6 \rightarrow SU(2)_Z \otimes SU(3)_c \otimes SU(2)_L \otimes U(1)_3 \otimes U(1)_6 \rightarrow$
$SU(2)_Z \otimes SM$. We find that the SM couplings converge into $SU(6)$ at a mass scale
(2×10^{15}), corresponding to a proton mean lifetime $\tau_p \sim 9 \times 10^{32}$yr, consistent with
the actual lower bound, while the E_6 grand-unification occurs below the Planck
scale. This scenario implies the existence of heavy mirror fermions with masses
(250).

[1] P. Q. Hung, hep-ph/0504060; *ibid.*, Nucl. Phys. B **747**, 55 (2006).

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