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P3.086 **Leptonic flavour mixing influenced by flavon cross couplings**

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Current neutrino oscillation data suggest special flavour structures in the lepton sector and support a certain flavour symmetry at some high energy scale. Flavons play a key role to realize these structures in the framework of discrete flavour symmetries. They gain vacuum expectation values, breaking the flavour symmetry and leaving residual symmetries different in the charged lepton and neutrino sectors. This misalignment leads to lepton flavour mixing.

I introduce a new approach to connect flavour mixing with flavon cross couplings. We find that cross couplings between different flavons can break the residual symmetries, shifting the VEVs of flavons and modifying flavour mixing. These couplings can be origins of the non-zero reactor angle and CP violation. Models in this approach can be achieved by introducing only a few degrees of freedom and can be more economical than those in the framework of extra dimension or supersymmetry.

Simplicity, as a great advantage of this approach, makes it possible for us to establish definite relations between mixing parameters and properties of flavons on one hand, and test the phenomenological property of flavons on the other hand. One aspect is to test the couplings of flavons and leptons. We study lepton-flavour-violating decays of charged leptons. The special property of flavons in a discrete symmetry results in some interesting features of these decay channels. Current experimental constraints from $\mu \to e\gamma$ allow the scale of the flavon symmetry not far above the electroweak scale.