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## Super weak force and origin of neutrino masses

*Thursday 17 January 2019 09:00 (30 minutes)*

We consider an anomaly free extension of the standard model gauge group  $G_{SM}$  by an abelian group to  $G_{SM} \otimes U(1)_Z$ . The condition of anomaly cancellation is known to fix the Z-charges of the particles, but two. We fix one remaining charge by allowing for all possible Yukawa interactions the known left handed neutrinos and new right-handed ones that obtain their masses through interaction with a new scalar field whose vacuum is broken spontaneously. We discuss some of the possible consequences of the model and ways of constraining the parameter space.

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