Contribution ID: **70**   Type: **not specified**

Mass and width of unstable particles

Tuesday 10 May 2022 15:15 (15 minutes)

We show that the mass and width of an unstable particle are precisely defined by the pole in the complex energy plane, $\mu = m - (i/2)\Gamma$, by using the the defining relationship between the width and the lifetime, $\Gamma = 1/\tau$. We find that the physical Z boson mass lies 26 MeV below its quoted value, while the physical W boson mass lies 20 MeV below.

Author: WILLENBROCK, Scott (University of Illinois at Urbana-Champaign)

Presenter: WILLENBROCK, Scott (University of Illinois at Urbana-Champaign)

Session Classification: QCD&EW II