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Top quark mass measurement using bottom quark energy at the LHC

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I will discuss a new method of precision top quark mass measurement using bottom quark energy at the LHC. The relevant technique is based upon the observation that if a certain heavier particle decays into a massless visible particle and another particle, the energy peak in the laboratory-frame energy distribution of the visible particle is the same as its corresponding monochromatic energy value measured in the rest frame of the heavier particle. Remarkably, this "invariance" is insensitive to the details of production mechanism of the heavier particle as far as it is produced in an unpolarized way. I will extend this observation to the case with higher order corrections considered, and discuss their impact upon the top mass measurement.

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