Higgs boson mass and width from ATLAS $\gamma\gamma$ data

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Abstract

The ATLAS $\gamma\gamma$ data is analysied with a simple Breit-Wigner model. The energy and the width of the Higgs boson is determined.

1 Introduction

The Breit-Wigner function is given as

$$\sigma(E, \Gamma) \propto \frac{1}{(E - E_r)^2 + \frac{\Gamma^2}{4}} \, , \qquad (1)$$

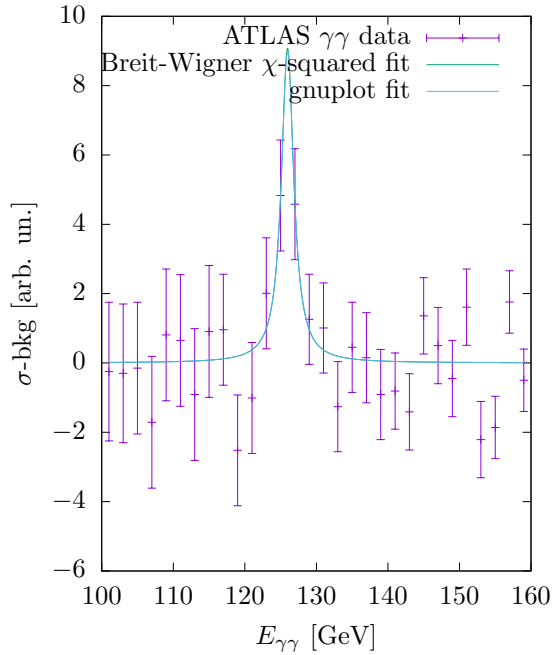Figure (1) shows the fit with the function in equation (1).

Figure 1: Breit-Wigner fit to the $\gamma\gamma$ data from AT-LAS. The energy of Higgs boson is 126.0±0.25 and the width is 0.98±0.15.