Simulation Preliminary

CMS Phase-2

The figure shows a plot of the differential fiducial cross section \(d^4\sigma / dp_T\) for the process \(H \rightarrow \gamma\gamma\) normalized to the number of events in the fiducial phase space. The plot includes various lines and markers representing different theoretical uncertainties and signal expectations.

- **Legend**:
  - **Stat + exp. syst. + ggH+VH theo. uncert.**: Line with markers
  - **Hadronic categories only**: Blue line
  - **Leptonic categories only**: Blue dashed line
  - **Expectation \(\kappa_\lambda = 10\)**: Red dashed line
  - **Expectation \(\kappa_\lambda = -5\)**: Red dotted line
  - **ttH+tH theo. uncert.**: Yellow line

**Selection Criteria**
- \(|Y^H| < 2.5\)
- \(H \rightarrow \gamma\gamma\): \(p_T^\gamma > 20\) GeV, \(|\eta^\gamma| < 2.5\)
- \(\geq 2\) jets: \(p_T^j > 25\) GeV, \(|\eta^j| < 4\), at least one b jet

**Axes**
- **x-axis**: \(p_T^H\) (GeV)
- **y-axis**: \(d^4\sigma / dp_T\) (fb/GeV)

**Observed Data**
- **Data Points**: Marked with black symbols
- **Uncertainty Bands**: Around the data points

**Theoretical Expectations**
- **Solid Lines**: \(\kappa_\lambda = 10\)
- **Dashed Lines**: \(\kappa_\lambda = -5\)

**Legend Notation**
- **Legend Entries**: Describes the different theoretical uncertainties and signal expectations.