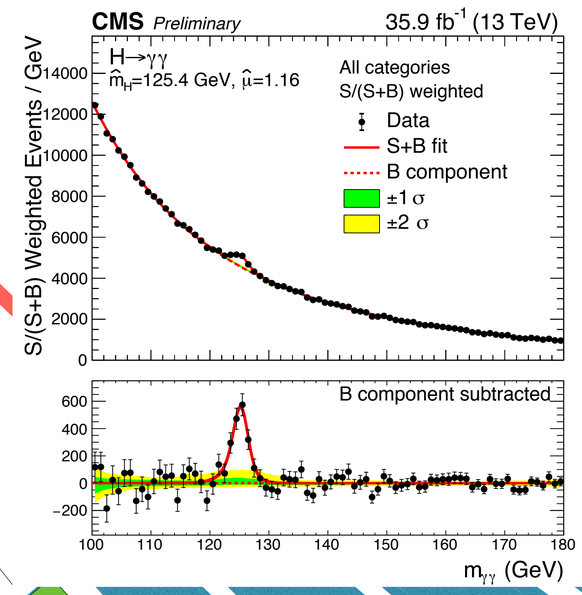
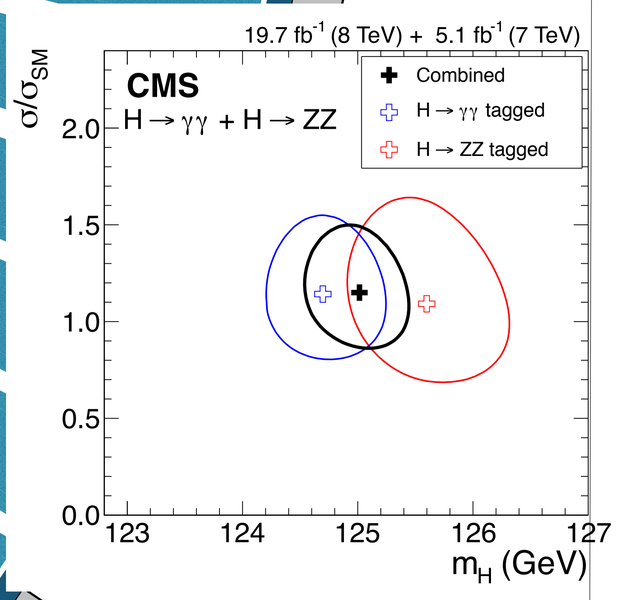
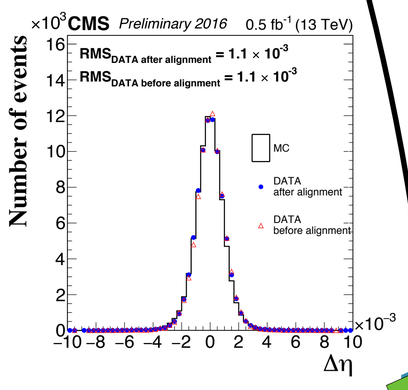
Performance of the CMS electromagnetic calorimeter in Run II and its role in the measurement of the Higgs boson properties

Measurement of H properties crucially depends on ECAL energy and position resolution

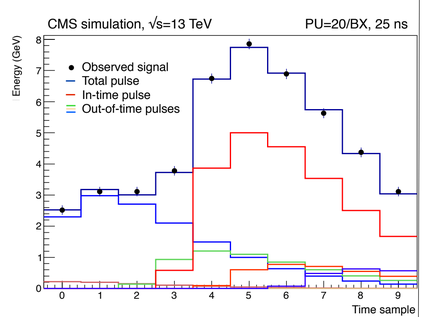




Position resolution depending on energy measurement performance

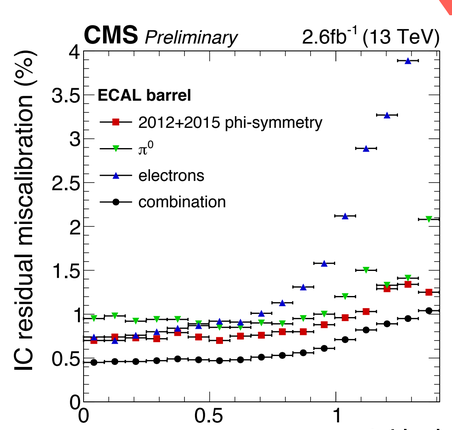


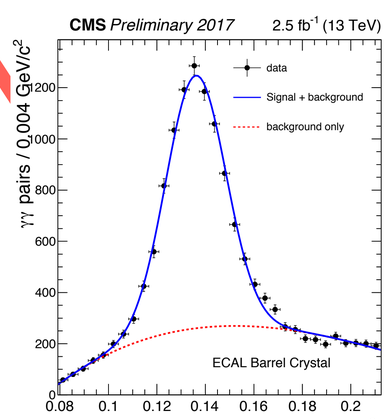
Pulse shape fitted with in-time pulse + up to 9 out-of-time pulses (multifit)



A_i

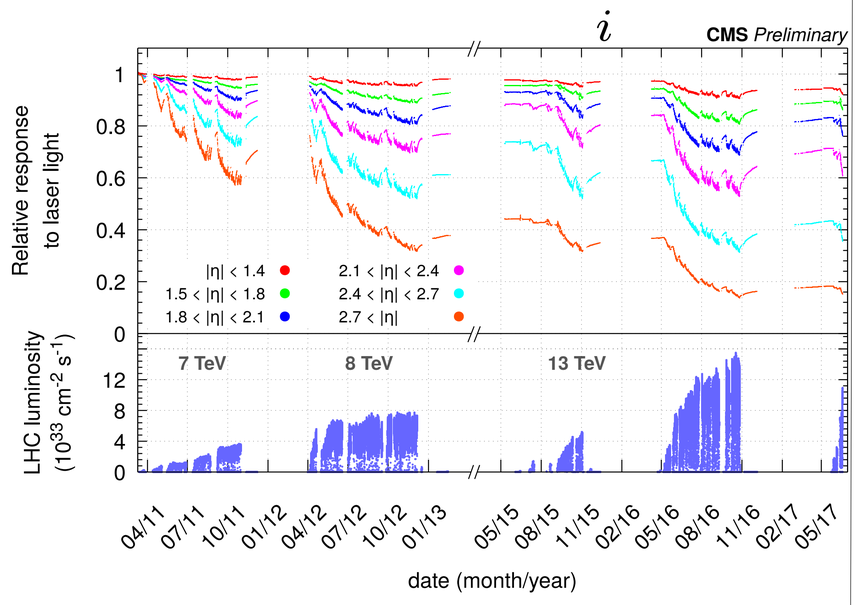
Electron Superclusters built out of clusters collected along ϕ strips. Response of channels equalised using intercalibration constants derived from ϕ-symmetry and π^0 decays





$$E_{e,\gamma}^{raw}(t) = F_{e,\gamma} \sum_i c_i A_i(t)$$

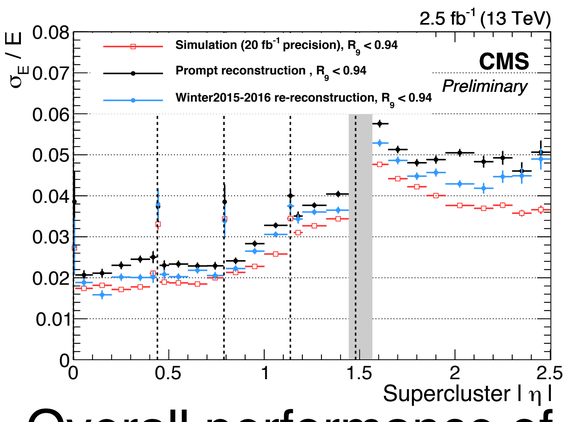
Time dependent amplitudes corrected for crystal transparency loss monitored with laser (partial recovery while not irradiated)



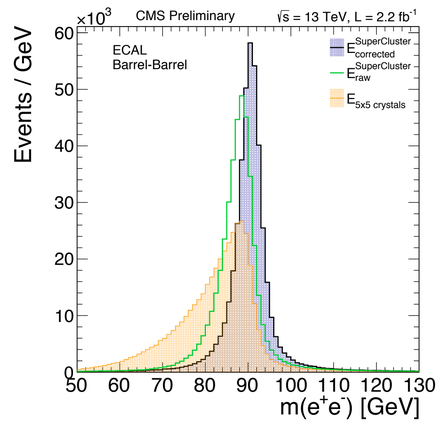
$$E_{e,\gamma}^{raw} = F_{e,\gamma} \sum_i c_i A_i(t) S_i(t)$$

Global scale obtained from constraints on Z peak

$$E_{e,\gamma} = G(\eta)\, F_{e,\gamma} \sum_i c_i A_i(t) S_i(t)$$



Overall performance of calibration algorithms



Giovanni Organtini on behalf of the CMS Collaboration