The poster presents a search for excited quarks ($q^*$) decaying into a $\gamma + \text{jet}$ final state at $\sqrt{s} = 8$ TeV with the CMS experiment, using the dataset corresponding to an integrated luminosity of 19.7 fb$^{-1}$ collected during 2012 data taking at the LHC. Photons and jets with high transverse momentum are selected to search for a resonance peak in the $\gamma + \text{jet}$ invariant mass distribution. The 95% confidence level upper limits on cross section times branching ratio are evaluated as a function of excited quark mass ($M_{q^*}$). We exclude at 95% excited quarks with $0.7 < M_{q^*} < 3.5$ TeV for standard model coupling, and present exclusions of excited quark mass as a function of coupling strength.

### Systematic Uncertainty
- Background shape uncertainty – evaluated by varying the fit parameters.
- Upper limits on cross section – evaluated using Bayesian formalism with uniform prior.

### Results
- Invariant mass distribution of the $\gamma + \text{jet}$ events in data – compared to MC simulations after final selection.
- Background modelling from data.
- Fit it to a smooth parameterization
- No Excess observed $\rightarrow$ Set Limits

### Conclusions
- A search for excited quarks in the $\gamma + \text{jet}$ final state is presented.
- Set 95% CL upper limits on $\sigma \times BR$ for $q^* \rightarrow \gamma + \text{jet}$.
- We exclude $0.7 < M_{q^*} < 3.5$ (2.9) TeV for $f = 1.0$ (0.5).
- Exclude region at 95% CL as function of coupling strength and $q^*$ mass.

### References
4. CMS PAS EXO-13-003
5. CMS Physics Results CMS13003

### Acknowledgement
I would like to thank DST, Govt. of India, and University of Delhi, for the financial support.