DEPARTMENT OF PHYSICS
PANJAB UNIVERSITY
CHANDIGARH
SIX-MONTHLY PROGRESS REPORT
PROFORMA FOR Ph.D. CANDIDATES

07.04.2018 to 06.07.2018

(To be submitted bi-annually by June, 30th and December, 31st)

1. Name of the candidate: Anterpreet Kaur
2. Faculty : Science
3. Department : Physics
4. Enrollment No. and Date : 13/1033 , 10-04-2013
5. Registration No. and Date : 4962, 4 February, 2016
6. Tentative/Approved Title : MEASUREMENT OF MULTIJET CROSS-SECTION RATIOS IN PROTON-PROTON COLLISIONS WITH THE CMS DETECTOR AT THE LHC (Approved)
7. A summary of the work done during the last six months (Depending upon the stage of Ph.D. work) providing details of (i) Review of Literature (ii) Experimentation/Data Collection, Field work (iii) Data Processing (iv) Data Analysis and Interpretation and (v) Stage of thesis writing with specific reference to the goals set for the previous 6 months. (Separate sheet attached)
8. Did you complete the tasks and achieve the goals you had set for the period under report ? Yes/No : Yes
   If No : Difficulties, Constraints faced in achieving the objectives that had been formulated for the period under report.
9. Publications if any : N.A.

Certificate :

It is certified that the information provided above is correct to the best of my knowledge. I shall try my best to achieve the above targets during the next six months.

Name of the Candidate : Anterpreet Kaur

Signature :

Certificate:

Progress report of the candidate : Satisfactory/Unsatisfactory/Need to be improved

Supervisor Name : Prof. Manjit Kaur

Signature :

Counter –Signature of the Chairperson

PROGRESS REPORT

I have submitted thesis on "MEASUREMENT OF MULTIJET CROSS-SECTION RATIOS IN PROTON-PROTON COLLISIONS WITH THE CMS DETECTOR AT THE LHC" on 06.04.2018. During P.hD., I have worked in collaboration with the CMS experiment CMS (Compact Muon Solenoid) experiment at CERN, Geneva. The measurements of the inclusive 2-jet and 3-jet event cross sections have been performed as a function of average transverse momentum (p_T) of two leading jets (H_T,2/2), for two and more number of jets. Now the cross-sections are being calculated for inclusive 4-jet case using LHC data as well as Monte Carlo predictions. After this, the different cross-section ratios will be calculated and used to extract the value of the strong coupling constant at the scale of mass of Z boson.

Other Activities :

- Presented a talk on **"Differential jet cross sections at the CMS experiment"** in **DIS2018: XXVI International Workshop on Deep Inelastic Scattering and Related Subjects, 16-20 Apr 2018, Kobe University, Kobe (Japan)**, on behalf of CMS Collaboration.

ANTERPREET KAUR,
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