

**UNIVERSITY OF JAMMU**  
**UNIVERSITY OF JAMMU RESEARCH FUND (UoJRF)**  
**Form-V**  
**PROJECT COMPLETION REPORT**  
(Submit in duplicate)

**1. Title of the project:**

Multiplicity fluctuation study of particles generated using EPOS4 Monte Carlo generator

**2. Name & Designation of Principal Investigator:**

Prof. Ramni Gupta

**3. Name & Designation of Co- Principal Investigator/s:**

..NA...

**4. Duration of the project:**

One year

**5. Sanctioned grant:**

Rs. 200000.00

(RA/23/1293-1300 Dated: 07-08-2023)

**6. Date of initiation of the project:**

September, 2023

**7. Date of closure of the project:**

December, 2023

**8. Whether the Utilization Certificate and statement of expenditure has been submitted?**

Yes

(If yes, mention the date and append the photocopy of the same)

**9. Approved objectives:**

Objectives of the proposed work are to study multiplicity fluctuations of the particles generated in Pb-Pb collision events from EPOS4: to investigate scaling behaviour of multiplicity fluctuations; to characterize multiparticle production; to obtain scaling exponents, to study dependence of scaling exponents on the phase space acceptance region; to obtain parameters related to the fractal behaviour of particle generation in the model and to perform comparative study of results obtained from the model and that from similar experimental studies.

**10. Title of the research paper published from out of the current project work**

(If any, attach reprint)

The equipment procured under the project is put to the data generation after its proper installation. The EPOS4 data has been generated. Out of this data there are conference contributions. Evidences attached.

**11. Title of the research paper accepted for publication from current research work**

(If any, attach copy of acceptance letter)

---N.A.---

**12. Report of the completed research project highlighting the deliverables:**

(Attach document- Min. 3000 words)

Attached

**13. Details of the consumable and non-consumable (including equipment) material procured from current research project grant.**

SOB010923001A (Workstation (Q@), Model-Tyrone Camarero SSI100F0R-55, S/N TX21972309 with 01 no.s monitor GW2283

14. Has the non-consumable material (including equipment) been handed over to the concerned department?  
(If no, the reasons thereof)

No

The workstation is under use for reserch related activitiies like evet generation using EPOS4 and other models and analysis in the O2 framework using CERN LHC GRID facility.

15. Has the stock register carrying entries of consumable/ non-consumable (including equipment) handed over to the concerned department?  
(If no, the reasons thereof)

No

Because the equipment purchased under the project is under use for the ongoing research activity.

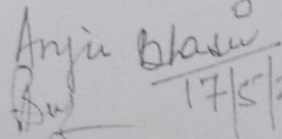
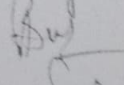
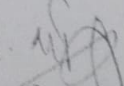
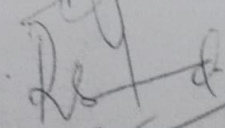
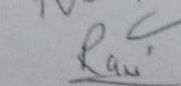
16. Was power point presentation of the current research work made before DRPMC by PI/Co-PI?  
(If yes, attach a certificate issued by concerned Dean/ HoD in this regard)

Yes

Comments of the concerned DRPMC

The work done has met the objectives and there is No deviation of the goals & objectives met

Members of the concerned DRPMC

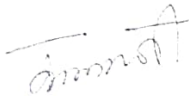
1. Prof. Anju Bhasin  17/5/2024
2. H.O.D., Physics 
3. Prof. Naresh Padha 
4. Prof. Rakesh Vaid 
5. Dr. Rani Devi 

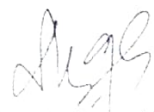
## UTILIZATION CERTIFICATE


Name of the Faculty: Prof. Ramni Gupta  
Designation: Professor  
Department: Department of Physics, University of Jammu  
Amount Sanctioned: Rs. 2,00,000.00  
Amount Utilized: Rs. 1,99,867.00  
Unspent Amount: Rs. 133.00  
Sanction No. & Date: RA/23/1293-1300 Dated: 07-08-2023

### Statement of Expenditure

Head	Amount allotted (INR)	Spent (INR)	Unspent (INR)
(b) Equipment(Repair) or any accessory, if needed, to the existing equipment	Rs. 2,00,000.00	Rs.1,99,867.00	Rs.133
Total	Rs. 2,00,000.00	Rs.1,99,867.00	Rs.133

  
Signature of P.I.

  
Deputy Registrar (Grants)  
Signatures of Dy. Registrar  
(Grants)  
15/8/24

  
Signatures of Finance Officer