

## PERSONAL INFORMATION

Osman Muhammed Ahmed

 Addis Ababa, Ethiopia +251991272627 osmanr18@ymail.com/osmanma24s@gmail.com [www.linkedin.com/in/osman-m-ahmed-3830r4038](https://www.linkedin.com/in/osman-m-ahmed-3830r4038) ORCID <https://orcid.org/0000-0001-7586-8232>

Date of birth 18 December 1987 | Nationality Ethiopian

## WORK EXPERIENCE

2011–2014 Lecturer of Physics, Assosa University, Ethiopia

2014–Now Lecturer of Physics, Debre Tabor University, Ethiopia

2020–2024 Research project, virtually

Advisor: Dr. Nathalie Degennar, Anton Pannekoek Institute for Astronomy, University of Amsterdam, The Netherlands

## EDUCATION AND TRAINING

2020–2024 PhD in Astronomy and Space Science Department King Abdulaziz University Jeddah, Saudi Arabia Thesis Title “**Study of transient variations in cosmic ray intensity and geomagnetic activity caused by solar eruptions of different plasma and field properties**” (Presented on October, 31 2024), Supervisors - Prof. Badr Badruddin and Prof. Moncef Derouich

2009–2011 Master of Science in Astrophysics

Department of Physics, Faculty of Science, Addis Ababa University, Addis Ababa, Ethiopia

2006–2009 Bachelor of Physics with minor Mathematics

Department of Physics, Haramaya University, Dire Dawa, Ethiopia (First class)

## PERSONAL SKILLS (LANGUAGE)

Amharic Mother tongue

English CEFR B2

## Conferences, trainings and workshops

- 2018, 116 Astronomy and Astrophysics International Course NASE, East African Regional Office of Astronomy for Development (EA-ROAD) and Ethiopian Space Science Society (ESSS), Ethiopian Space Science and Technology Institute (ESSTI), Entoto Observatory and Research Center (EORC), Network for Astronomy and School Education by IAU, courses (32 hours), Addis Ababa, Ethiopia
- 2019, Advanced Theoretical Astrophysics Summer School, Anton Pannekoek Institute for Astronomy, University of Amsterdam, The Netherlands.
- 2022, 14<sup>th</sup> University forum, presentation, King Abdulaziz University, Saudi Arabia
- 2023, Faculty of Science poster presentation, King Abdulaziz University, Saudi Arabia

## Community service and volunteer activity

- 2016, STEM (Science, Technology, Engineering and Mathematics), Department of Physics, (Volunteer for grade 10 students), Debre Tabor University, Ethiopia
- 2017, STEM (Science, Technology, Engineering and Mathematics), Department of Physics, (Volunteer for grade 10 students), Debre Tabor University, Ethiopia

## Organizational/managerial skills

- Ethiopian Space Science Society Debre Tabor University Branch, Debre Tabor, Ethiopia, (Coordinator from 2015-2019).

## COMPUTER SKILLS

Proficient Linux OS using Ubuntu &amp; Linux Mint

Intermediate Python (sunpy, astropy, matplotlib, pandas, numpy, seaborn, scipy), Mathematica, GNU Octave, Topcat

Advanced X-ray data analysis and modelling with Heasoft, Xspec

Advanced Statistical analysis tools, Data analysis for space research

## Publications

- O. Ahmed, N. Degenaar, R. Wijnands, and M. Armas Padilla, M., X-RAY OBSERVATIONS OF THE VERY-FAINT X-RAY TRANSIENT XMMSL1 J171900.4–353217: A NEW CANDIDATE NEUTRON STAR LOW-MASS X-RAY BINARY, RMxAA 60-2, 403–412 (2024). doi: 10.22201/ia.01851101p.2024.60.02.18
- Ahmed, O., Badruddin, B. and Derouich, M., Dynamics and solar wind control of the recovery of strong geomagnetic storms, Astrophys Space Sci 369, 64, (2024), <https://doi.org/10.1007/s10509-024-04325-3>
- O. Ahmed, B. Badruddin, and M. Derouich., Characteristics and development of the main phase disturbance in geomagnetic storms ( $Dst \leq -50$  nT), Advances in Space Research, vol. 73, no. 9, pp. 4453-4481, May 2024, <https://doi.org/10.1016/j.asr.2024.01.050>
- Osman Muhammed Ahmed, (2018), 2D Octupole Magnetic Field Lines from Neutron Star and Its Associated Radiation Pressure, Research & Reviews: Journal of Pure and Applied Physics, doi: 10.4172/2320-2459.1000202

## Ongoing Projects

- Ahmed, O., Badruddin, B. and Derouich, M., Forbush decreases in cosmic rays during intense geomagnetic storms, (**under review**), **Description of project:** Our study explored the link between galactic cosmic ray intensity variations and geomagnetic storms in Earth's magnetic field environment. We observed a significant correlation for moderate and strong storms and further examined the time lag between these events.
- Storm sudden commencement and its effect on intensity of geomagnetic storms, (Ready to submission)
- Study of successive geomagnetic storms

## Research Interests

- ☛ Galactic cosmic ray intensity decrease (Forbush decrease)
- ☛ Solar activity (sunspot numbers, solar flares etc.)
- ☛ Magnetic activity of the solar atmosphere
- ☛ Cosmic ray modulation with the solar activity

## References

- ☛ **Dr. Moncef Derouich**, Full Professor, Department of Astronomy and Space Science, Faculty of Science, King Abdulaziz University, Jeddah 21589, Jeddah, P.O. Box 80203, Makkah, Saudi Arabia, (Solar Physics), email: aldarwish@kau.edu.sa, phone: +966542817126.
- ☛ **Dr. Saleh Qutub**, Associated Professor, Department of Astronomy and Space Science, Faculty of Science, King Abdulaziz University, Jeddah 21589, Jeddah, P.O. Box 80203, Makkah, Saudi Arabia, (Solar Physics, Cosmology), email: squtub@kau.edu.sa, phone: +966508956069.