Highlights of Spanish Astrophysics XII, Proceedings of the XVI Scientific Meeting of the Spanish Astronomical Society held on July 15 - 19, 2024, in Granada, Spain. M. Manteiga, F. González Galindo, A. Labiano Ortega, M. Martínez González, N. Rea, M. Romero Gómez, A. Ulla Miguel, G. Yepes, C. Rodríguez López, A. Gómez García and C. Dafonte (eds.), 2025

10 Steps to LGBTQIA+ Inclusion in Astronomy: The PRISMA Framework.

Armentia, J.[1]

[1] PRISMA, Asociación para la diversidad afectivo sexual y de género en ciencia, tecnología e innovación. Planetario de Pamplona, Sancho Ramírez, S/N. E-31008 Pamplona, Spain. www.prismaciencia.org

Abstract

PRISMA, a non-profit organization, is committed to advancing LGBTQIA+ diversity and inclusion within the STEM fields. This paper presents a comprehensive 10-step action plan specifically tailored for astronomy organizations, aiming to create more inclusive and welcoming environments for LGBTQIA+ individuals. Grounded in scientific evidence and real-world experiences, these steps address key areas including education, protection, and visibility. By implementing this framework, institutions can foster a culture of inclusivity, promote equality, and enhance the overall well-being of LGBTQIA+ STEM professionals. This paper emphasizes the importance of ongoing education, training, and support to sustain these efforts and create a more equitable and diverse STEM landscape. Through the implementation of this action plan, astronomy organizations can contribute to a more welcoming and inclusive environment for all.

1 Introduction

Science, technology, and innovation play a crucial role in addressing global challenges and improving the quality of life. However, historical and societal inequities have created disparities within the STEM workforce, limiting diversity and hindering scientific progress. These observations can also be applied to the field of astronomy. Various studies conducted on the professional climate for LGBTQIA+ individuals in physics, chemistry, or astronomy (such as those conducted in the USA by the American Physical Society [1] or in the UK by the Institute of Physics, Royal Astronomical Society and Royal Society of Chemistry [2]) reveal realities that can be considered discriminatory: less than half of LGBTQIA+ individuals are "out" in their workplaces; a third of transgender or non-binary individuals have experienced harassment, exclusion, or intimidation in the past year, compared to 19% of women or 12% of men; there is evidence of attrition at all stages of the scientific career from higher education

(leaking-pipes); this results in psychosocial, occupational, and health consequences in many cases.

On the contrary, various studies ([3], [4]) show that research groups that are more diverse (in all dimensions considered: gender, inclusion of minorities, territoriality, cultural diversity, and of course, sexual orientation and gender identity) produce higher quality science as measured by standard metrics: more impact, more citations, longer-lasting and more recognized projects.

In a parallel line of work to the awareness of the problem of gender and inequality, sexual orientation and gender identity diversity is beginning to be recognized as a condition that should be promoted: with visibility and role models but above all with actions that favor the correction of inequality situations as soon as possible.

2 PRISMA: Fostering LGBTQIA+ Inclusion and Diversity in STEM

PRISMA [5] is a non-profit organization created in 2018 dedicated to advancing LGBTQIA+ diversity and inclusivity within the fields of Science, Technology, Engineering, and Mathematics (STEM). By leveraging scientific data and real-world experiences, PRISMA seeks to create a more equitable and inclusive environment for LGBTQIA+ individuals in the STEM community.

While recognizing the valuable contributions of other organizations working towards similar goals, PRISMA focuses on specific issues and challenges faced by the LGBTQIA+ community within STEM. By examining the intersection between these two groups, PRISMA aims to identify and address systemic barriers that hinder LGBTQIA+ individuals from pursuing careers in STEM.

PRISMA advocates for research and learning environments that embody fairness, equality, and diversity. By creating spaces where LGBTQIA+ individuals feel safe, respected, and valued, PRISMA aims to foster a culture of inclusivity that encourages all members of the STEM community to contribute their unique perspectives and talents. It is often assumed that scientific environments would be free from bias and prejudice. However, these settings are not immune to societal inequities, especially when lacking diversity. This lack of diversity can hinder rational decision-making and scientific progress.

Through its initiatives and collaborations, PRISMA seeks to promote a more equitable and diverse STEM landscape, where everyone has the opportunity to thrive and contribute to scientific advancement.

3 A ten-step guide to promote inclusion and diversity in science, technology and innovation environments: 10 PRISMA ACTIONS.

A fundamental objective of PRISMA is to enhance the workplace environment for LGBTQIA+ individuals in STEM fields. This entails fostering equality of opportunity, creating safe and inclusive spaces, ensuring visibility, and valuing the contributions of LGBTQIA+ professionals. To achieve these goals, PRISMA has developed a 10-step action plan grounded in scientific evidence and real-world experiences. These steps provide practical guidance for research centers, universities, tech companies, and scientific associations seeking to create more inclusive and welcoming environments.

The guide addresses specific actions that can be implemented to improve procedures and foster positive relationships within the LGBTQIA+ community. By following these steps, organizations can contribute to a more equitable and diverse STEM landscape.

The document, outlining these measures, has been publicly accessible on the association's website [6] since 2023. Furthermore, the association has developed and disseminated expert-reviewed educational resources through a series of workshops, conferences, and courses conducted in collaboration with scientific institutions, including the Women and Astronomy Commission of the Spanish Astronomical Society.

These are the 10 PRISMA Actions grouped in 3 areas: education, protection and visibility.

3.1 Education

As human beings, we discriminate against that which we do not understand. That is why education should be the foundation of any fight for equality. In addition, STEM is a source of knowledge and learning, and is therefore constantly in touch with the educational system. As such, taking part in promoting positive values is particularly important. The actions included in this block are:

- 01 Educating STEM staff on LGBTQIA+ issues.
- 02 Supporting LGBTQIA+ visibility and equality in outreach actions.

3.2 Protection

The safer their environment is, the more likely it is for members of the LGBTQIA+ community to come out of the closet, thus improving their quality of life, their mental health and even their productivity. It is vital that we both prevent discrimination, and protect those who are already facing it. In other words, although education is a preventative means of reducing exclusion, we must be able to react appropriately and decisively when discrimination does occur. In this group, the most important actions are:

- 03 Establishing safe channels that can be used to report aggression, discrimination and harassment.
- 04 Ensure equal opportunities for trans and gender nonconforming individuals in recruitment and selection processes.
- 05 Establish protocols and guidelines to handle the transitioning process for trans professionals in the workplace.
- 06 Avoiding binary gender classification systems: creating inclusive bathroom facilities, providing more gender options in forms, etc.
- 07 Rejecting pseudoscientific discourses used to discriminate the LGBTQIA+ community.

3.3 Visibility

Visibility, both in terms of role models and concrete actions within research and research centers, is crucial for preventing LGBTQIA+ individuals from being overlooked for opportunities and fostering a more inclusive and diverse scientific community. However, it is essential to prioritize institutional improvements that ensure the safety and well-being of LGBTQIA+ professionals before implementing visibility initiatives. Without a supportive and inclusive environment, increased visibility can inadvertently expose individuals to discrimination and harassment, hindering their professional advancement. The actions best suited to improving visibility are:

- 08 Showcasing LGBTQIA+ role models in STEM, as well as institutional support for the community.
- 09 Maintaining a feminist and intersectional perspective throughout all phases of this framework.
- 10 Promoting research topics within STEM that intersect with the LGBTQIA+ community, through diverse work teams.

4 Summary

This paper has presented a comprehensive 10-step action plan to promote LGBTQIA+ inclusion and diversity within STEM fields. By addressing critical areas such as education, protection, and visibility, this framework provides a roadmap for organizations seeking to create more inclusive and welcoming environments for LGBTQIA+ individuals. The implementation of these actions can significantly contribute to a more equitable and diverse STEM landscape, fostering innovation, creativity, and the advancement of scientific knowledge. To ensure the long-term success of these initiatives, ongoing efforts are needed to educate, train, and support STEM professionals in creating inclusive cultures.

Acknowledgments

This work was made possible by the groundbreaking symposium organized by SEA Women and Astronomy Commission, which marked a significant milestone in the history of Spanish scientific societies. The PRISMA association, and in particular its scientific committee, deserve special recognition for their tireless efforts to promote inclusivity in scientific research. The experts who have conducted workshops and talks over the past five years have played a crucial role in fostering a more equitable and diverse scientific community. I would like to express my sincere gratitude to all involved for their invaluable contributions to this research.

References

[1] LGBT Climate in Physics: Building an Inclusive Community, 2016, American Physical Society

[2] Exploring the workplace for LGBT+ physical scientists, 2019 IoP, RAS and RSC

[3] Diversity: A Nature and Scientific American Special Issue, 16 Sep 2014

[4] Nature Editorial: Science benefits from diversity. 06 Jun 2018

[5] PRISMA Asociación para la Diversidad Afectivo Sexual y de Género en Ciencia, Tecnología e Innovación. Website: www.prismaciencia.org

[6] The 10 PRISMA actions (in English)