Conference Discussion Notes

Basis and scope

These notes summarize the main topics addressed during the conference discussions on May 6 and May 8, 2026. They highlight key scientific questions and challenges and outline possible directions for future research and collaboration.

A. Wednesday discussion: career paths in and outside science

Discussion leaders: Else Starkenburg and Hans-Walter Rix (6 May 2026). The slide titled “Career paths in and outside science” identified two broad areas:

Training and career paths for early-career researchers

- Can large survey projects build teams that are accessible, safe, and worthwhile for early-career researchers?
- What future scientific and technical pathways are likely to emerge from large collaborative projects?
- How can careers focused on data, software, project management, and scientific communication become more secure and better supported?

Bridging transitions beyond academia

- How can supervisors and mentors support people who want or need to move into nonacademic careers?
- What makes mentoring effective in such situations?
- How can connections between scientific institutions and other sectors benefit people on both sides?
- Which management styles and collaborative practices best prepare researchers for different careers?

B. Friday scientific discussion: priorities for the next decade

Discussion leaders: Elena D’Onghia, Julio Navarro and Roelof de Jong (8 May 2026). The concluding slide invited participants to consider the following connected questions:

- How much of the Milky Way’s formation and assembly history will be understood ten years from now, and what are the largest remaining uncertainties?
- Which major puzzles in galaxy formation should be prioritized, and where do observations and simulations still disagree most seriously?
- Which new surveys and facilities should receive priority to make the greatest scientific difference?
- Which epochs of galaxy formation are most informative for confronting models: the era of peak star formation (“cosmic noon”) or low-redshift galaxies?
- What was learned by placing the Milky Way in the broader context of other galaxies, and how representative is the Milky Way among spirals?
- What would constitute the next transformative observational breakthrough for Galactic dynamics, stellar ages, chemistry, or dark-matter constraints?
- How important are future ultraviolet capabilities for stellar-abundance measurements?

C. Summary

The two discussions addressed complementary aspects of the future of large-scale astronomical research. The Wednesday session focused on career development, mentoring, and the opportunities and challenges associated with large scientific collaborations. The Friday session considered outstanding questions in Galactic archaeology and cosmology, the relationship between observations and simulations, and the scientific opportunities offered by forthcoming surveys and facilities.

Together, these discussions identified important scientific and organizational challenges that merit continued attention within the astronomical community.

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