

Astrobiology as an Interdisciplinary Starting Point to Natural Sciences for High-potential Children

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1. Introduction

One of the corner stones of the Research Platform on ExoLife, University of Vienna, Austria is public outreach and education with respect to astrobiology, exoplanets, and planetary sciences. Since 2009 several initiatives have been started by the Research Platform to concentrate the interest of students in and outside the University onto natural sciences. Astrobiology as a very interdisciplinary scientific discipline with questions like “Are we alone in the Universe?,” “How unique is Earth as a planet?” or “How did life originate?” will fascinate youngsters and junior scientists (see [1]).

2. General Programs Developed by ExoLife

Several different programs have been developed to ensure an optimal impact of astrobiological topics onto the (young) community: (a) University lecture courses with varying special topics (for University students), duration: 1 semester, (b) courses on astrobiology and planetary sciences (from 8-12 years), duration: five parts, (c) courses on astrobiology and planetary sciences for high potentials (from 8-14 years), duration: five parts, (d) a lecture course on the evolution of the universe and of life (for adults), duration: 10 parts, (e) several special topic talks focusing on different astrobiological highlights (e.g. SETI).

When comparing only the total numbers of participants in the public courses/talks (which were held in most cases together with the Volkshochschule/public education center Vienna within the University Meets Public program) then one fact becomes apparent: much more students/adults take part in astrobiological courses than in any other kind of natural-science events [2].

3. Special Programs for High-Potential Youngsters

Especially the programmatic point (c) courses on astrobiology and planetary sciences for high potentials (from 8-12 years), which are organized together with the Landesakademie of Lower Austria (the responsible authority for the support of high potentials in Lower Austria) reflects our efforts to enhance the interests onto natural sciences for potential young scientists.

Mainly focusing on school subjects as Chemistry, Physics, Geography and Biology in the courses the following goals are targeted: (1) Teaching of knowledge exceeding the official content of these subjects for the different age levels, (2) deepening this knowledge, (3) individual and collective learning and solving of problems, (4) enhancing the ability of critical thinking and new perspectives.

Another intended consequence of these courses is to support critical thinking on medial coverage. Especially astrobiological discoveries will have a deep impact on press and media all over the world, but unfortunately it will seldomly happen that in the media articles more than rough pictures or a rash conclusions of discoveries are given and journalists are often not very willing to discuss the topic some weeks ago again, when new results will allow more detailed considerations (e.g. the story of GFAJ-1, the discovery of two more planets in the Gliese-581 systems, which have never been confirmed, or the supposed discovery of evidence of extraterrestrial life in meteorites in Wickramasinghe et al. contained press releases and not per-reviewed articles).

4. Conclusions

In our presentation we will offer an insight into the detailed contents of our courses for high-potentials and show first results on the evaluation of these programs.

Acknowledgements

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References

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- [2] Leitner, J.J., Firneis, M.G., Hitzenberger, R., Astrobiology as a starting point for natural sciences for school and university students - Initiatives in Austria; European Astrobiology Network Association (EANA) Meeting, 22-25 July, 2013, to be held in Szczecin, Poland, 2013, accepted.