**Selection effects in Gaia and Solaris**

**Abstract**

The progress in astrobiology has revealed a great number of planets partially physically similar to Earth in the Galaxy. Most of them are much older than our planet, so a naïve application of the Copernican Principle would suggest that most of them inhabit biospheres similar to the Terran ones. There are multiple problems with such an application, and a research program aiming to assess and quantify the degree of specialty or mediocrity of our biosphere and its evolution has to face several pivotal observation selection effects. Specifically, it is crucial to try to analyze *different* ways in which biospheric evolution could have diverged from the Terran template elsewhere. In a paper currently in progress, we propose an alternative macroevolutionary pathway that may result in the tight functional integration of all sub-planetary ecosystems, eventually giving rise to a true superorganism at the biospheric level. The blueprint for a possible outcome of this scenario has been masterfully provided by Stanisław Lem in his 1961 novel *Solaris*. The Solaris scenariooffers such a persuasive and powerful case for an “extremely strong” Gaia hypothesis, that it is, arguably, high time to investigate it in the discursive astrobiological and philosophical context. We briefly outline the argument by which most biospheres in the Galaxy have intrinsic radically different coding concepts and significantly less chance to be found by astrobiological searches calibrated on the Earth’s version of Gaia.

**Keywords**: astrobiology – habitability – macroevolution – symbiosis – Gaia hypothesis – evolutionary convergence – superorganism – biosignatures – philosophy of biology – Stanisław Lem