

**Monte Carlo Method and Drake's Equation.** Ramírez-Ramírez, R.<sup>1</sup>, Vázquez, R.<sup>1</sup>, Núñez, P. G.<sup>2</sup> <sup>1</sup>Instituto de Astronomía, Universidad Nacional Autónoma de México, Ensenada, B. C., rodrigo@astrosen.unam.mx, <sup>2</sup>Instituto de Estudios Avanzados de Baja California, A. C.

**Introduction:** The search for extraterrestrial intelligence (SETI) has been very controversial and all the attempts to find an intelligence civilization outside our planet have failed. A theoretical approach of SETI has to be done in order to study the feasibility of the SETI and if it is really worth to invest in that area. We propose to use the Monte Carlo Method to study Drake's Equation. In 1961, Frank Drake came up with his famous equation, which is a simple algebraic expression that gives the total number of extraterrestrial civilizations capable to communicate with the Earth. Past studies have used numerical methods as testbeds of hypothesis of extraterrestrial life and intelligence, and even using Monte Carlo realizations [1].

The idea is to have as few free parameters as possible to obtain a more accurate result. In recent years, the astronomical parameters of Drake's equation have been better delimited due the advances in observations, mainly in the discovery of a great amount of exoplanets with which we can build new and more accurate observational distribution functions. Nowadays we have knowledge of the existence of Earth-like planets orbiting Sun-like stars within our galaxy, and more than 1800 confirmed exoplanets [2]. With the new discoveries and the improvement of past models, we give an estimation of the possibility of existence of extraterrestrial life, from simple life to more complex intelligence life.

**References:**

- [1] Forgan, D. (2009) *Int. J. Astrobiol.*, 8, 121–131.
- [2] <http://exoplanets.eu>