

# Astrobiology: Resolution of the Statistical Drake Equation by Maccone's Lognormal Method in 50 Steps

We use the mathematical tool of Maccone's lognormal distribution to further factor the Drake equation, which calculates the number of advanced civilizations in the galaxy, from the seven original levels of the Drake equation to 49 levels of overall analysis. The Maccone approach, in fact, supported by the central limit theorem, becomes more reliable the more levels are introduced. The resulting study necessarily draws upon an array of disciplines ranging from astronomy, chemistry and geology to biology, paleontology and futurology. The result calculates the number of planetary systems suitable for life in its various stages of development: those which have probably hosted life in the past and those which still host it at its various evolutionary levels. The final evolutionary level is the so-called galactic civilization (often called ETC, or Extra Terrestrial Civilizations). The number of resulting galactic civilizations is divided between static civilizations, which do not move around the galaxy and whose Kardashev rating is still low (less than 1.4), of which we find three examples (we ourselves plus, perhaps, two others), and potentially dynamic civilizations, which move around the galaxy and have a sufficiently high Kardashev rating (equal to or greater than 1.4), of which we find 2,000.

## Title

THE LIVING GALAXY: 50 shades of the Drake equation through the lognormal of Claudio Maccone

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## Track

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