

Juan Perez-Mercader is a physicist (born near the Rio Tinto in Southern Spain). His professional research interests are in all the theoretical, phenomenological, experimental and technological aspects of problems at the common frontiers between physics, biology, chemistry, planetary science, computing and engineering. He has worked and published in Theoretical Elementary Particle Physics, Cosmology, Astrophysics, Applied Condensed Matter Physics, Non-equilibrium Physics, Biology, Experimental and Theoretical General Relativity and Theoretical Chemistry as well as in the design and construction of instrumentation for Life Detection outside the Earth. His undergraduate work was done in the Universidad de Sevilla and his M. Sc. in Mathematics and Physics is from Trinity College, Dublin. His Ph. D. is from City College of New York. After returning to Spain in 1984, he joined Spain's National Research Council, where he is Profesor de Investigación. He is also an External Faculty at the Santa Fe Institute, in New Mexico. In 1998 and in Association with the NASA Astrobiology Institute, he conceived and founded Spain's Centro de Astrobiología (CAB) of which he was its first Director. During his tenure as Director, CAB and its 12 laboratories have become a world-class transdisciplinary research institution, employing more than 200 scientists and engineers and, among other things, contributing to NASA's Mars Science Laboratory (MSL). He is credited with the sentence "Life as a Consequence of the Evolution of the Universe" and is the architect of Spain's current participation with infrastructure (the rover's High Gain Antenna, HGA) and instrumentation (the Rover's Environmental Monitoring Station suite, REMS) on board MSL that arrived on Mars in August 2012.

Using the Renormalization Group, he has predicted proton decay in Grand Unified Theories (GUTs) and described the fractal and hierarchical structure of the Universe at large scales. He has worked in Superstrings and Wormholes and tested Einstein's General Relativity by detecting and measuring the Lense-Thirring effect (also known as the gravito-magnetic effect). His work on Supersymmetry and Supergravity in the 1980's is now being used at CERN to constrain the properties of the "Higgs boson". He has also described the evolution of Quasi-species in RNA viruses. He has done pioneering work on pattern formation and collective behavior in noisy reaction-diffusion systems and co-authored new ideas and instrumentation for the detection of Signs of Life in arbitrary environments. He joined Harvard in 2010 as a Senior Research Fellow in the Department of Earth and Planetary Sciences and the university's Origins of Life Initiative, where he leads an ambitious project on the "Top-down ex-novo Synthesis of life". The objective of this project is the chemical realization of a set of equations whose solutions under certain conditions are known to describe the basic collective features of "simple" living systems. He has authored about 150 research papers published in the best journals and five books, including a best selling popular science book in Spanish. He has two patents in Biotechnology. He is an Elected Member of the International Academy of Astronautics and of the European Academy of Arts and Sciences. He is the recipient of many honors and distinctions. Among these are one of the Prizes given in 1994 by the Gravity Research Foundation, the European Physical Society Lecturer for the 2005 Celebrations in Bern of Einstein's 1905 work there and the NASA Public Service Medal (NASA's highest honor to a non-NASA employee) in 2004 and in 2013 NASA's Group's Achievement Award for exceptional achievement on REMS. There are several public schools and institutions bearing his name.