

# Laudation in honor of Professor Miguel Ángel Jiménez Montaña

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**Abstract.** During our academic event, a laudatory ceremony in honor of Professor Miguel Ángel Jiménez Montaña was carried out and a brief account of his achievements was presented. Professor Jiménez Montaña is a founding member of the Faculty of Physics of the University of Veracruz, Campus Xalapa (founded in 1962). Professor Jiménez Montaña is currently the Dean of this Faculty and one of the most respected Mexican Physicist in the research areas of Biophysics and Computational Molecular Biology.

- Institution and labor unit: Universidad Veracruzana, Faculty of Physics and Artificial Intelligence.
- Specialty: Biophysics and Computational Molecular Biology (Bioinformatics).
- Doctorate: Doctor of Science (Physics Statistics), Nicolaus Copernicus University, Torun, Poland, January 1976.
  
- Current position: Full-time Professor.
- SNI member since 1984, currently at level II.
- Dean of the Faculty of Physics and Artificial Intelligence.
- Member of the Mexican Academy of Sciences.
- He has directed 37 thesis of all levels (32 Bachelor, 3 Master and 2 Ph.D. theses).

Dr. Jiménez Montaña obtained the Physicist title from the Faculty of Sciences at National Autonomous University of Mexico (UNAM) in 1967, a master's degree in science from the University of Wisconsin, USA, in 1969 and a Ph.D. from the University of Nicholas Copernicus, Poland, 1976. In 1982 he was a Fulbright Fellow in the Department of Biophysics and Biochemistry, University of California, San Francisco, where he worked with Dr. Hugo M. Martinez, a pioneer in bioinformatics.

He is the author of 68 publications in specialized journals, which have received more than 250 citations, 21 book chapters and 9 release articles, two of which have won awards in national competitions with the first and second place, respectively. He has participated in 32 international and 52 national meetings and has given over eighty undergraduate and graduate courses.



For ten years he was professor and researcher at the University of the Americas, Puebla. He has been a visiting researcher at universities in Mexico and Germany. In 1989 he received the Research Award and in 2004 Dean Award, both from the Universidad Veracruzana.

His research interests include three areas related to evolutionary processes, which are as follows: The structure of the genetic code, technological evolution and informational measures and algorithmic complexity of sequences of symbols and nerve signals. Along with Werner Ebeling, in 1980, published two basic papers: The first, is the first article in the literature in which a syntactic approach is applied to the study of DNA and proteins and which introduces a new measure of sequences complexity [1], the second is a Markov model of technology diffusion, which helped launch a line of research in Evolutionary Economics [2]. In 1992 he introduced the first representation of genetic code as a Boolean hypercube with six dimensions and subsequently released to the public the corresponding computational tool called “HyperGCode”, which has recently been applied to problems related with the mutability of immunoglobulin genes with important and promising results.

Dr. Jiménez Montaña just completed the research project: Symmetries and Amino Acid Substitutions in Randomness in Proteins, during a sabbatical in the Division of Mathematics, Science, and Technology, Nova Southeastern University, Fort Lauderdale, Florida, in collaboration with Prof. Dr. Matthew He. Currently has initiated a research project on Influenza A hemagglutinin epitopes. He recently wrote the article: “The Fourfold Way of The Genetic Code” [3].

## References

- [1] Ebeling W, Jiménez-Montaña M A 1980 On Grammars, Complexity, and Information Measures of Biological Macromolecules *Mathematical Biosciences* **52**, 53-71
- [2] Jiménez-Montaña M A, Ebeling W 1980 A Stochastic Evolutionary Model of Technological Change *Collective Phenomena* **3**, 107-114
- [3] Jiménez-Montaña M A 2009 The fourfold way of the genetic code *Biosystems* **98(2)** 105-14