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**Report on academic activities for the period 2019-2023**

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**Research articles**

Chela-Flores, J. (2019a). Testing S isotopes as biomarkers for Mars. *International Journal of Astrobiology*, **18** , Issue 5, pp. 436 - 439. DOI: https://doi.org/10.1017/S1473550418000393.

Chela-Flores, J. (2021a). Miniaturised instrumentation for biosignatures on the ocean worlds in the solar system. *Frontiers Journal Space Technology* 27 July 2021, DOI: https://doi.org/10.3389/frspt.2021.703809.

**Books (in print)**

Chela-Flores, J. (2019b). *Astrobiology and Humanism: Conversations on the frontiers of science, philosophy and theology.* (Cambridge Scholars Publishing, Newcastle upon Tyne, United Kingdom). ISBN (10): 1-5275-3436-7; ISBN (13): 978-1-5275-3436-0.

**Book chapters**

Chela-Flores, Julian (2019c). The Delusion of Unethical Science Popularization: Astrobiology in an Ethical Dialogue of Faith and Reason. In: *Theology and Science: From Genesis to Astrobiology*, Chapter 12. J. Seckbach and R. Gordon (eds.) World Scientific Publishers, Singapore, New York, pp. 231-239.

Chela-Flores, J. (2020a). Can biogeochemistry give reliable biomarkers in the Solar System? In: *Extremophiles as Astrobiological Models*. Joseph Seckbach and Helga Stan-Lotter (eds.) World Scientific Publishers, Singapore, pp. 369-384.

Chela-Flores, J. (2021b). Foreword. "*Astrobiology: Science, Ethics, and Public Policy*". Octavio Alfonso Chon Torres, Ted Peters, Joseph Seckbach and Richard Gordon (eds.) *Astrobiology: Science, Ethics, and Public Policy*. Scrivener Publishing, Wiley, pp.xv-xviii.

Chela-Flores, J. (2021c). Moral philosophy in a second genesis under evolutionary convergence. Octavio Alfonso Chon Torres, Ted Peters, Joseph Seckbach and Richard Gordon (eds.) *Astrobiology: Science, Ethics, and Public Policy*, Chapter 3. Scrivener Publishing, Wiley, pp. 57–78.

**Articles (in preparation)**

1. Chela-Flores, J. (2022). Habitability of Ganymede. By invitation for "*Ganymede*". Editors M. McGrath, X. Jia, T. Spohn and M. Volwerk. (In press with Cambridge University Press).

2. Chela-Flores, J. and Joseph Seckbach (2022). Universal evolution of life in the Solar System: The role of extremophiles. Preliminary version for a chapter in: *Life Possibilities in the Clouds of Venus* Jiřík, J. and Seckbach, J. (eds.)*.* In the the series: Astrobiology Perspectives on Life of the Universe. Wiley-Scrivener, Beverly, Massachusetts, USA. Series editors:  Richard Gordon-Joseph Seckbach.

3. Chela-Flores, J. (2023). The Role of Astrobiosemiotics in the Search for Extraterrestrial Civilizations. Invited chapter for the book: *Pathways to Origin and Evolution of Meanings in the Universe*, to be published. Editors Alexei Sharov, George Mikhailovsky,  Richard Gordon and Joseph Seckbach. Publisher Scrivener-Wiley, in the Book Series: Astrobiology Perspective on Life of the Universe. Series editors:  Richard Gordon-Joseph Seckbach.

**Participation in scientific events**

Chela-Flores, J. (2020). Habitabilidad de Mundos Oceanicos en nuestro Sistema Solar. Invited speaker (in Spanish) to the Fifth International Digital Congress in Astrobiology, Bogota, Colombia, 11-14 November.

Sandalinas, J. and Chela-Flores, J. (2021). How Law And Ethics Would Need To Be Adapted To The Discovery Of Extraterrestrial Life? 50th IAA Symposium On The Search For Extraterrestrial Intelligence (SETI). The Next Steps (A4) (Paper ID: 66167). SETI 2: SETI and Society (2). 72nd International Astronautical Congress, Dubai, United Arab Emirates, 25-29 October.

Chela-Flores, J. (2022). Instrumentation For The Detection Of Agnostic Biosignatures And Habitability Parameters On Europa and Ganymede. Submitted to AbSciCon2022, Atlanta, USA, 24-27 May 2022.

**Support of TWAS**

First reference for a candidate that had been nominated for the "TWAS-AREP Prize 2021 “Public Understanding and Popularization of Science”.

**International collaboration**

Reviewing:

1. A manuscript for consideration in the special issue "Current and Future Instrumentation for the Detection and Identification of Signatures of Life on Mars and Beyond" in **Frontiers of Astronomy and Space Sciences** (August 2021).

2. A manuscript for consideration in the **Astrobiological Journal** (June, 2021).

3. **Proposed European reviewer of a habilitation thesis**. The science faculty of the University of Bern, for Dr. Andreas Riedo to receive officially the title *Venia Docendi*. This thesis is about the detection of signatures of life using LIMS to explain the new methods he has developed.

**Science Communication**

**Notes on the history of the Abdus Salam ICTP.**

(Available from: http://www.ictp.it/~chelaf/ss420.html)

1. The inauguration of the main campus of the ICTP.  
2. The main inauguration event: Contemporary Physics Trieste Symposium 1968.

3. Recollections of Paul Dirac at the ICTP.

4. The fascination of Abdus Salam with biology.

5. Sergio Mascarenhas one of ICTP most distinguished pioneers.