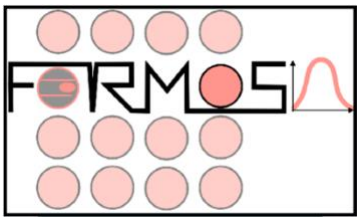

A python-based Forward Modeling Tool for Spectral Analysis

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The field of exoplanet science is rapidly evolving. It is incredible to look back and realize that the first one was discovered in 1992, followed by a handful during the following decade. In 2005 astronomers directly detected the first exoplanet in infrared light, enabling to study its atmosphere, size, and orbit. And today, more than 5000 exoplanets have been confirmed. However, this high number of exoplanets data needs to be analyzed homogeneously to extract their physical and chemical compositions. Only this way can we attempt to answer some of the most intriguing questions, for example: How does an exoplanet form? How was the solar system formed? Are there different populations?

In the current context of the transition of the exoplanetary field from discovery to complete characterization of their atmospheres using the outstanding data coming from SPHERE, HST, SINFONI, X-shooter, CRIRES+, ERIS, JWST, and other fascinating instruments, as a group, we have developed a forward modeling tool based on a Bayesian algorithm (ForMoSA) that compares spectra and/or photometry data to grids of computed atmospheric models to derive the physical properties of the targets. The code is user-friendly and fully available as an open-source Python package (https://formosa.readthedocs.io/en/latest/).

I propose to prepare a poster at the PNP session in SF2A with the objective of (i) presenting this tool and its functionalities, (ii) describing how to get started, and (iii) enabling the possibility of future collaborations with the community by complementing the different approaches to target this fascinating research problem.