

FAIR principles guided end-to-end cyber infrastructure for preservation of UFO models

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Background: UFO models and FAIR principles

- Universal FEYNRULES Output (UFO) model [1]
 - Model of Beyond the Standard Model theory used by Monte Carlo event generators
 - Store different information of the particle model, in a generator-independent way, into different python files
 - A convenient way to access physics models on different platforms
- Findable, Accessible, Interoperable, Reusable (FAIR) Principles [2]
 - Provide guidelines to search, obtain, and use digital objects/data
 - Improve the ability of machines automatically search/use data
 - Help users better access/reuse existing data

Goal for the project

- Develop FAIR criteria for preservation of UFO models
- Create a set of tools, guided by the FAIR Principles, as an end-to-end cyberinfrastructure to bridge among the developers and users of UFO models
- For developers, a central, public repository will be published to handle registration and verification of the UFO models. Each model will be identified with a set of keywords, including the arXiv identifier and/or the Digital Object Identifier(DOI) for the associated publication.
- For users, a python API will be built for searching UFO models using keywords.

Current Progress

- Background reading about UFO models and FAIR Principles
- Learn about Continuous Integration on GitHub and design a first set of tests

References

1. Céline Degrande et al. “UFO – The Universal FeynRules Output”. In: *Computer Physics Communications* 183.6 (2012), pp. 1201–1214. ISSN: 0010-4655. doi: <https://doi.org/10.1016/j.cpc.2012.01.022>
2. Wilkinson, M., Dumontier, M., Aalbersberg, I. et al. The FAIR Guiding Principles for scientific data management and stewardship. *Sci Data* 3, 160018 (2016). <https://doi.org/10.1038/sdata.2016.18>

Thank you!