Abstract Submitted
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An Illustrative Guide to the Minerva Framework[1] ERIK FLOM, Univ of Oklahoma, PATRICK LEONARD, UW-Madison, UDO HOEFFEL, SEHYUN KWAK, ANDREA PAVONE, JAKOB SVENSSON, MACIEJ KRYCHOWIAK, Max Planck Institute for Plasma Physics, WENDELSTEIN 7-X TEAM COLLABORATION — Modern phsyics experiments require tracking and modelling data and their associated uncertainties on a large scale, as well as the combined implementation of multiple independent data streams for sophisticated modelling and analysis. The Minerva Framework offers a centralized, user-friendly method of large-scale physics modelling and scientific inference. Currently used by teams at multiple large-scale fusion experiments including the Joint European Torus (JET) and Wendelstein 7-X (W7-X), the Minerva framework provides a forward-model friendly architecture for developing and implementing models for large-scale experiments. One aspect of the framework involves so-called data sources, which are nodes in the graphical model. These nodes are supplied with engineering and physics parameters. When end-user level code calls a node, it is checked network-wide against its dependent nodes for changes since its last implementation and returns version-specific data. Here, a filterscope data node is used as an illustrative example of the Minerva Framework's data management structure and its further application to Bayesian modelling of complex systems.

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