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Dr. Andrew C. Klein
Editor
Nuclear Technology

To Dr. Andrew C. Klein,

Please find enclosed a manuscript entitled: "Demand Driven Deployment Capabilities in Cyclus, a Fuel Cycle Simulator" which I and my coauthors (Mr. Roberto E. Fairhurst Agosta, Mr. Jin Whan Bae, Dr. Robert R. Flanagan, Dr. Anthony M. Scopatz, and Dr. Kathryn D. Huff) are submitting for exclusive consideration of publication as a technical paper in Nuclear Technology.

This manuscript describes and demonstrates a new capability in Cyclus, an open-source nuclear fuel cycle simulator framework, to automatically deploy fuel cycle facilities to create a supply chain to meet user-defined power demand. This new capability, d3ploy, successfully deployed fuel cycle facilities in multiple transition scenarios from the current light water reactor fleet to closed fuel cycles with continuous recycling in fast and thermal reactors. Using d3ploy to set up transition scenarios is a more efficient method than previous efforts that required a user to manually calculate and use trial and error to set up the deployment scheme for the supporting fuel cycle facilities. By automating this process, when the user varies input parameters in the simulation, d3ploy automatically adjusts the deployment scheme to meet the new constraints.

Thank you for your consideration of our work. I expect it will be of interest to a broad readership concerned with the nuclear fuel cycle, nuclear fuel cycle modeling and simulation, and the impact of fuel cycle technology on energy system transitions. Please address all correspondence concerning this manuscript to me at the University of Illinois.

Sincere regards,

Gwendolyn Chee
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