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Title: A suite of Python Tools for MCNP Users

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A suite of Python Tools for MCNP Users

Cole Frederick

2025 MCNP User Symposium

July 7-10, 2025

Overview

- What: a Python package to assist MCNP users. Both commands and library functionality
- When: distributed with MCNP 6.4 (probably)
- For what:
 - assist in analysis of MCNP output
 - parsing and generating MCNP input
 - basic creature comforts
 - amalgamation of various tools currently floating around, and making them uniform

General Vision

- You write python code that imports the MCNP package, eg
 - `from mcnp.input.geometry import Cylinder`
 - Meaning you could also have nicely reusable common components across projects
- Basic tools, needing few dependencies, all in one place, eg the nuclear data downloader
- Standard input deck manipulation library, and a high level Python API for generating input decks
- Common post processing functionality
- (Perhaps a faster release cadence than MCNP itself)

A few small examples