

Farther Out

EnergyPlus C++

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Hybrid Design

Outer, User-Centric Layer in Python/?

- Faster & simpler for non experts
- Good GUI & visualization options

Inner, Compute Engine in C++

- Focus on Performance

Presumes separate rep./logic & compute core

Structured (YAML, XML, ...) Inputs

Simple input validation

One-time handler code development

Easy to add/modify fields: Zero coding

Dynamic GUI: Zero coding

Tree representation simplifies version migration

Human readable/editable

Pybrid: YAML Input

Pybrid:

Meta:

Type: Case

Version: 1.1.0

File: PWR.schema.pybrid

Sig: 7d39111d6199999d0e0aa8625fa464fd

Title: Steady State PWR 15x15

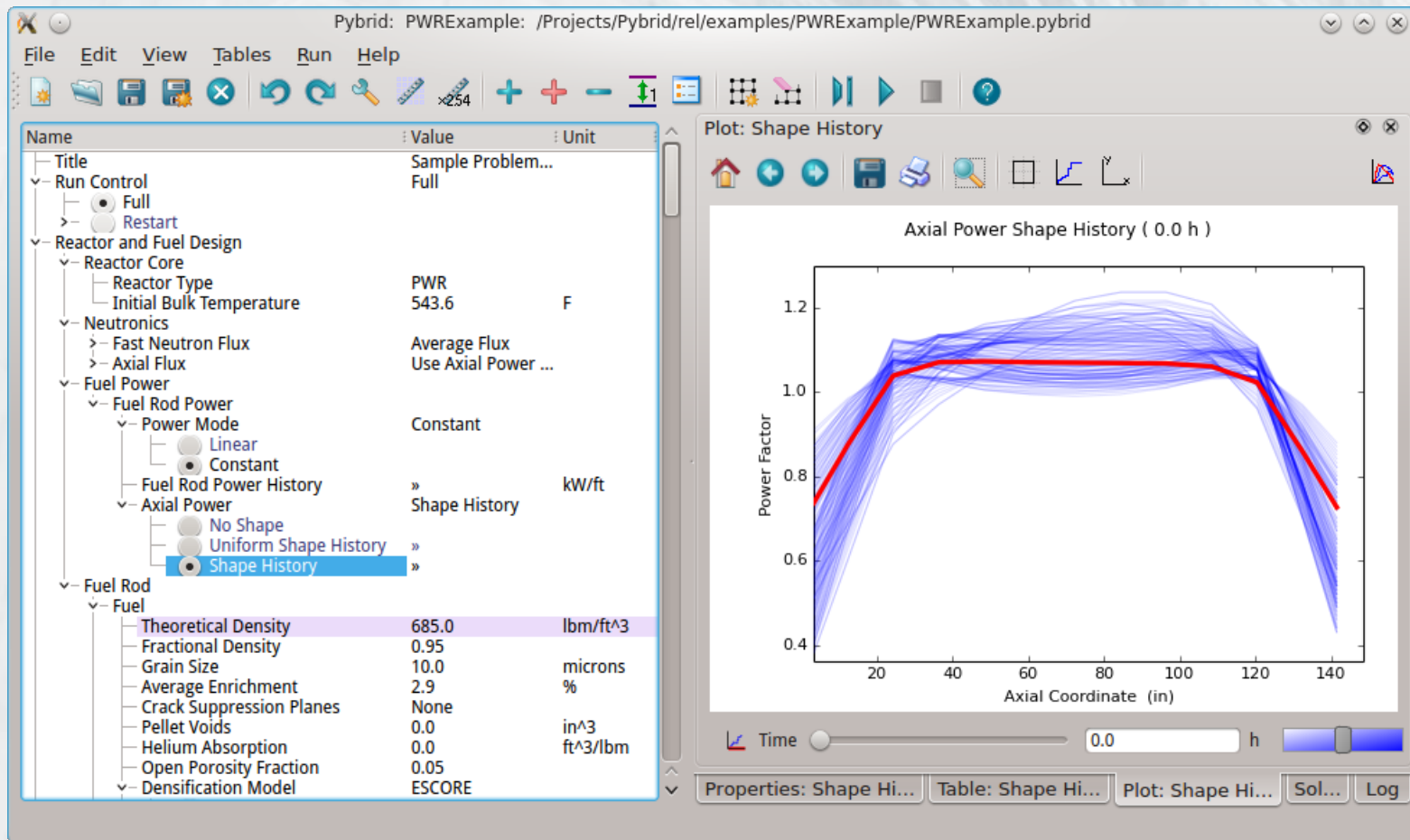
Reactor Core:

Initial Temperature:

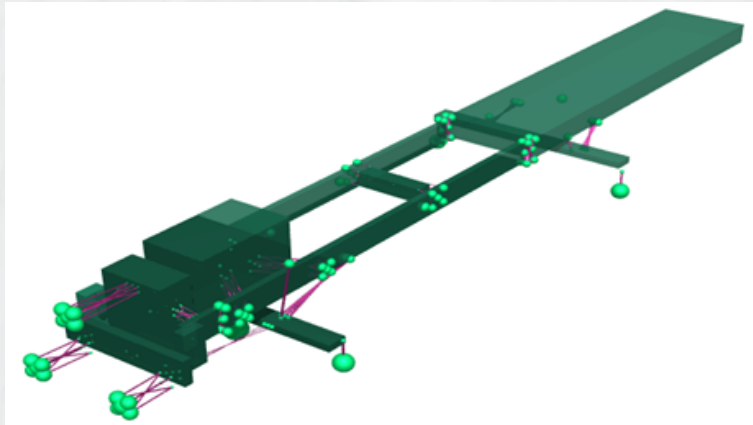
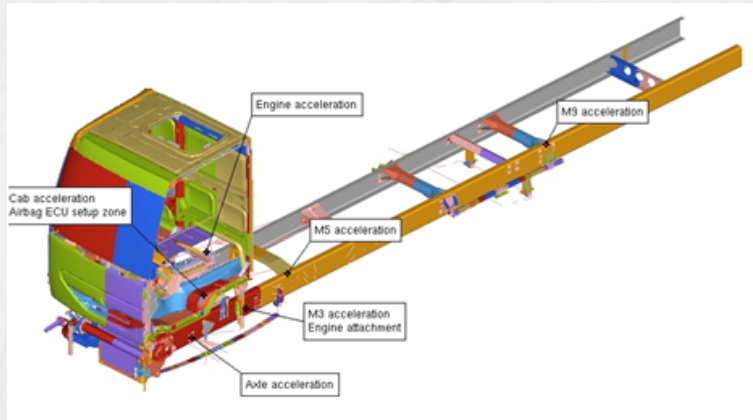
Unit: F

Legal: [32.0>

Value: 543.6



SISAME



SISAME:

Run:

DelTOut: .0001

FinTOut: .035

Model: Top

DOF: xyzrpw

Gravity: -z

DimSys: English

IniV:

w: 199.1631652

FixedMass: Floor

Plane: Surface

Color: Gray

Top.sim.sisame - ObjexxSISAME 1.9.0

File Edit Run Help

Type	Value	Unit
r	rad(60)	rad
p		rad
w		rad
▶ Initial Displacement		
▶ Initial Velocity		
Cutoff Frequency		Hz
Time-Zero Tail Smoothing Frequency		Hz
End Time Tail Smoothing Frequency		Hz
▶ Velocity Confidence Band Factor		
▶ Position Confidence Band Factor		
Segment Smoothing Confidence Band Factor		
▶ Impulse Confidence Band Factor		
▶ Integrated Impulse Confidence Band Factor		
▶ Mass	Body	
▼ Link	Restraint	
Description		
Class		
Point 1	Body.Tip	
Point 2	Floor	
▶ Size		
Color	Coral	

Model Plot Table

Layered Inputs and Schemas

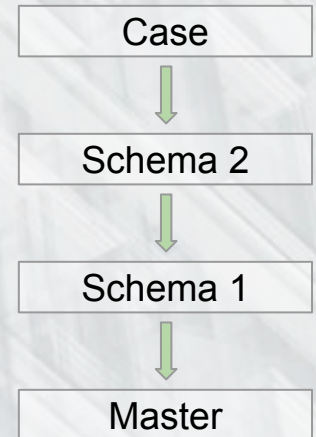
Master input config defines all fields

Chain of schemas filters & customizes fields for specific classes of analyses

- Provide a starter set of schemas
- Users can develop their own

Case file points to top schema

GUI editing: Minimal Case saves



Audit Tracing

Input files store hash sig of referenced files

Output files contain hash of inputs

Check/detect alteration of dependencies

Verifies inputs used to generate outputs

Portable, Compact Results Files

HDF5 or similar portable binary file

Generate more outputs without re-running

Fast post-processing

Audit trail of input file hash signatures

Real-Time Visualization

3D building view

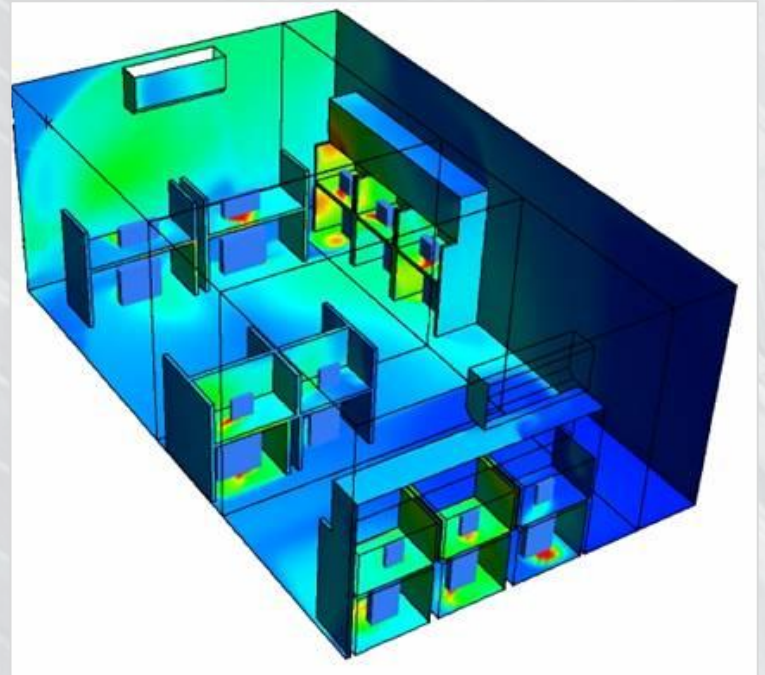
Live zoom/pan

Select display:

- Temperature
- Air/Mass flow

Replay in post-processor

Ray-traced animation output (POV-Ray, ...)



Questions

