

REAL2SIM GAP

How big is the gap? What effects can explain the gap? (intensity effects vs other)

How do you define a validated model? Have you developed metrics to guide your work?

Given experimental data, how different is your machine from design? Are our design tools good enough?

DIGITAL TWINS

Infrastructure for digital twins is being developed. What obstacles do you anticipate to creating tightly-coupled virtual accelerators?

How to design experiments for working accelerators which extract the maximum amount of information needed to tune a digital twin?

ML-based exploration techniques

BETTER TOOLS

Documenting code assumptions;

All codes make numerous small assumptions. Something as trivial as taking a first-order approximation of say computing the momentum deviation coordinate from energy deviation can lead to moderate differences in tracking results over tens of thousands of turns.[This is done in PyORBIT.] Should the code developers and the user community come together and contribute to a table documenting these assumptions for various simulation codes?

What specific diagnostic limitations did you encounter?

INVESTMENTS

What will a good benchmark enable?

Can you point to any operational decisions that were /will be informed by a validated model?

What investment is needed? If you had additional funds, what would you spend it on?