

# Offline Organization: Simulations & Analysis Simulation Component Connection Diagram

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MAGIS Science & Simulation Meeting



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science



Gordon and Betty  
**MOORE**  
FOUNDATION



Science and  
Technology  
Facilities Council

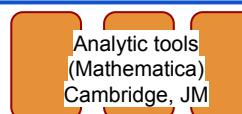


THE  
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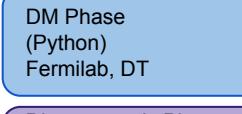
# Databases (e.g., B-field and Seismic models)

## Phase shift calculators

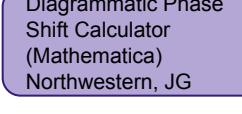
By-term, analytic & numeric



Analytic tools  
(Mathematica)  
Cambridge, JM



DM Phase  
(Python)  
Fermilab, DT



Diagrammatic Phase  
Shift Calculator  
(Mathematica)  
Northwestern, JG

## Launch Prep.

Matter Wave Lensing  
Undeveloped

Optical lattice launch  
Undeveloped

Hanover group  
simulation tools?

“Fast”

## Wavefunction evaluation and sampling

WF Sampling  
(Python)  
Fermilab, DT

## Image Generation

Fast PSI cloud image calculator  
(Mathematica)  
Northwestern, JG

Parameterized Image Generation (Python)  
Fermilab, DT

GradOptics (Python)  
SLAC, MK

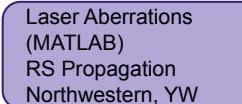
Wave Optics  
(Python/C++)  
Oxford, DW

Fluorescence diffusion and recoil  
Jeremiah? DWs?

## Time-Domain Analysis

Phase Extraction  
(Python, various)  
Various

Fourier Analysis Tools  
Various/Undeveloped



Laser Aberrations  
(MATLAB)  
RS Propagation  
Northwestern, YW

Numerical WF Evol.  
(Python/Rust)  
Cambridge, NM

Semi-classical Per particle WF evol.  
(Julia)  
Northwestern, YW  
SLAC, MK, SG

## Laser simulator