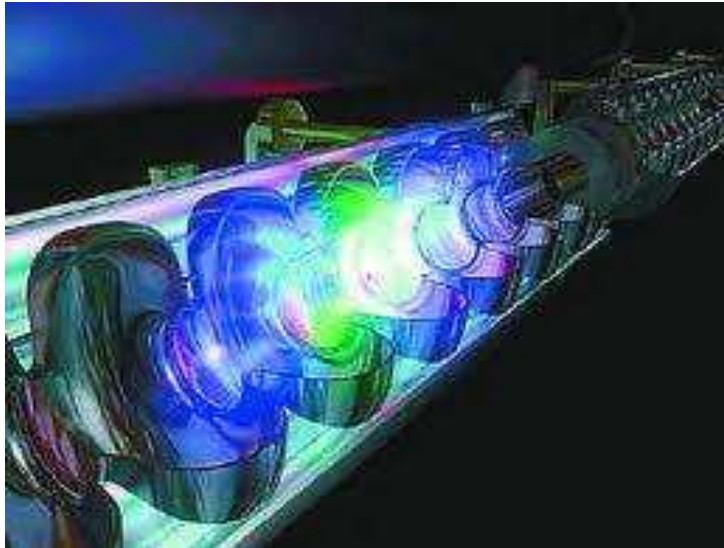


# Numerical Tools for the European XFEL

## “Start-to-End” Simulations



Igor Zagorodnov

S2E Meeting

DESY

28. October 2013

# Codes

## Optics

Excel (W.Decking)

## Wake Fields

Access (O. Zagorodnova)

## Injector

ASTRA  
(Y. Kot)

## RF parameters

RFtuner (M. Dohlus)  
Track1D (I. Zagorodnov)

## Space Charge

Optics (M. Dohlus)

## Fast 3D

Elegant (H. Jin)  
xcode (I. Agapov et al)

## Full 3D

ASTRA+CSRtrack  
(G. Feng)

## FEL Simulations

Genesis (H. Jin, G. Feng)  
ALICE (I. Zagorodnov)



# Tool 1 (Y. Kot)

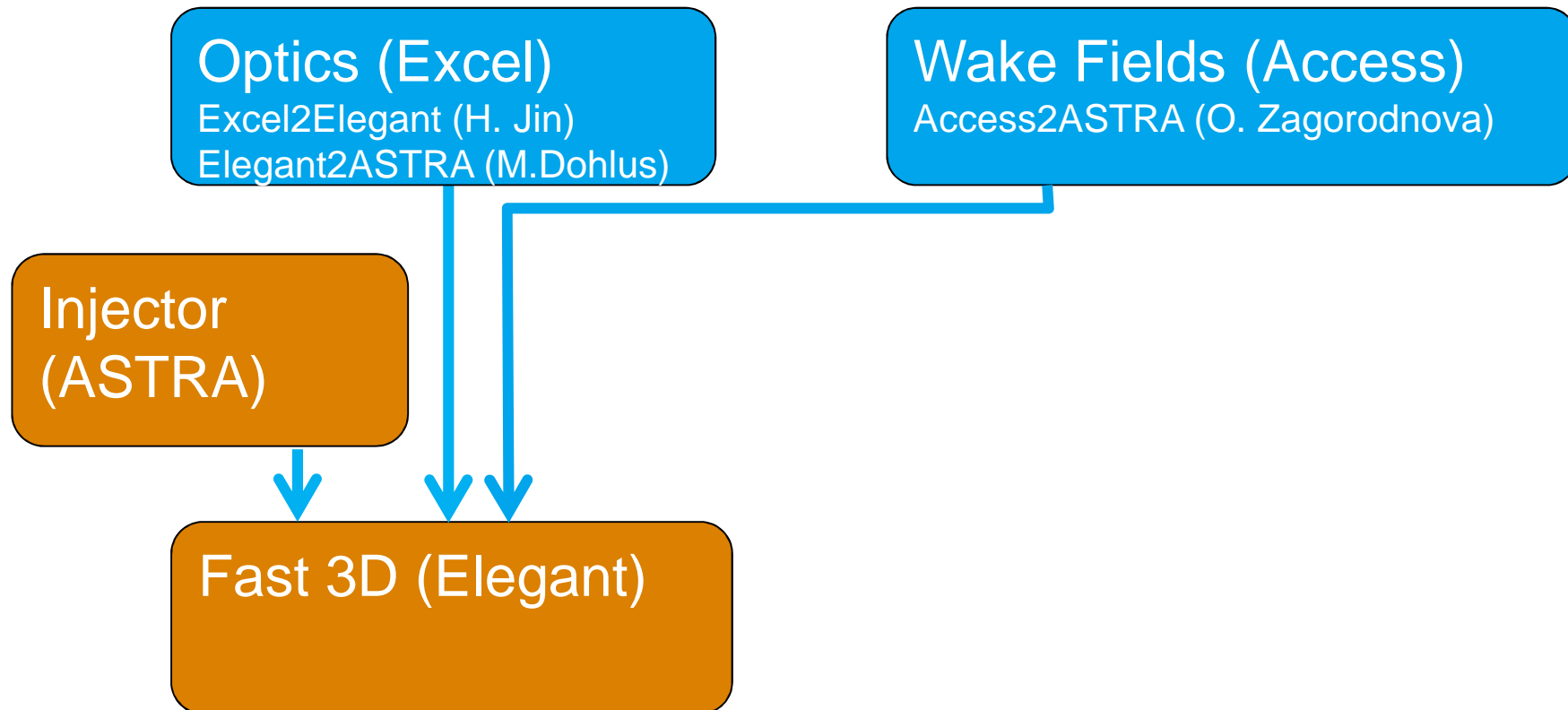
Optics  
Excel2Elegant (H. Jin)  
Elegant2ASTRA (M.Dohlus)



Injector  
(ASTRA)



# Tool 2 (H. Jin)



# Tool 3 (H. Jin)

Optics (Excel)

Excel2Elegant (H. Jin)

Elegant2ASTRA (M.Dohlus)

Wake Fields (Access)

Access2ASTRA (O. Zagorodnova)

Injector  
(ASTRA)

RF parameters  
(Matlab)

Fast 3D (Elegant)



# Tool 4 (G. Feng)

Optics (Excel)

Excel2Elegant (H. Jin)

Elegant2ASTRA (M.Dohlus)

Wake Fields (Access)

Access2ASTRA (O. Zagorodnova)

Injector  
(ASTRA)

RF parameters  
(Matlab)

Fast 3D (Elegant)

Elegant2ASTRA (M.Dohlus)

Full 3D  
(ASTRA+CSRtrack)



# Tool 5 (G. Feng)

Optics (Excel)

Excel2Elegant (H. Jin)

Elegant2ASTRA (M.Dohlus)

Wake Fields (Access)

Access2ASTRA (O. Zagorodnova)

Injector  
(ASTRA)

RF parameters  
(Matlab)

Space Charge  
Optics (Matlab)

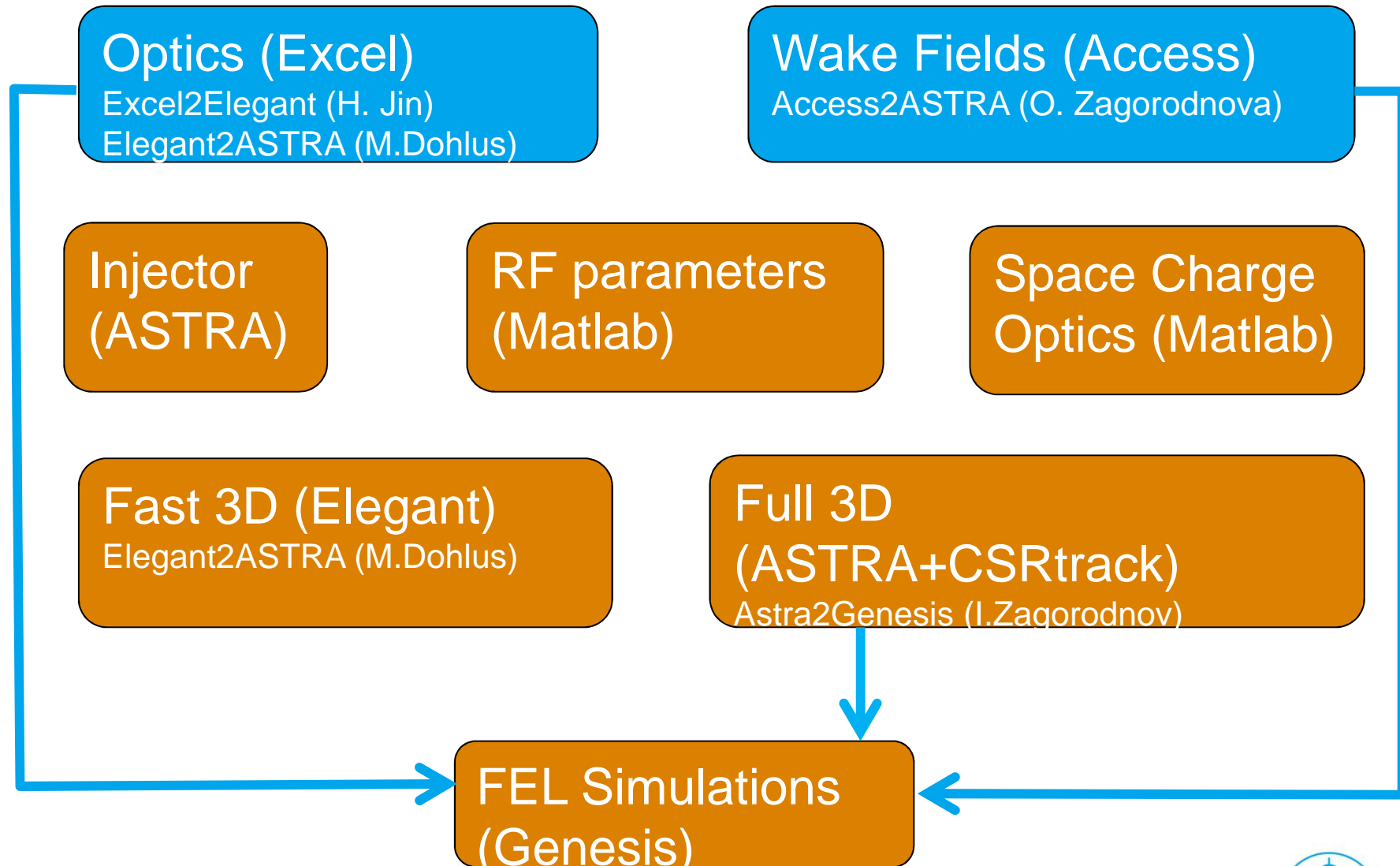
Fast 3D (Elegant)

Elegant2ASTRA (M.Dohlus)

Full 3D  
(ASTRA+CSRtrack)



# Tool 6 (I. Zagorodnov)





# Tools

