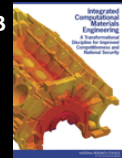


# Materials Genome Timeline

2004 NMAB  
Accelerating  
Technology  
Transition

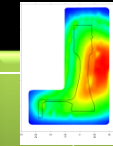


2008 NMAB  
ICME



Concurrent  
Engineered  
Systems

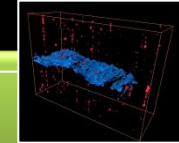
2001 DARPA  
AIM



2003 Ford  
VAC



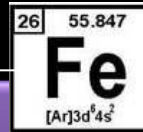
2005 ONR/DARPA  
D3D



Integrated Computational Materials Engineering

Alloys  
Polymers  
Ceramics  
Composites

1985  
SRG  
Systems  
Approach



Ferrous Alloys

1989  
NASAlloy



1997  
Ferrium C61™



2000  
Ferrium S53®



Refractories

2004  
Ferrium C64™



SMAs  
Al-base Alloys

2007  
Ferrium M54™

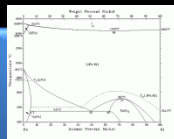


Cu-base Alloys

Computational Materials Design

Materials  
Genome

1956  
Kaufman & Cohen



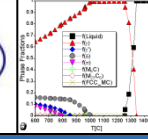
1973  
CALPHAD



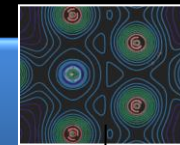
1979-84  
Thermo-Calc  
SGTE



1990s  
DICTRA  
Pandat  
Thermotech

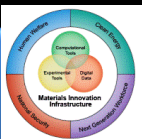


PrecipiCalc®



2000s  
DFT Integration

2011  
Materials  
Genome  
Initiative



Gen I

Gen II

Gen III

1950

1970

1980

1990

2000

2010

# Computational Materials Qualification Acceleration

## TRL Milestones

## Material Development Milestones

TRL7: first landing gear field service test flight

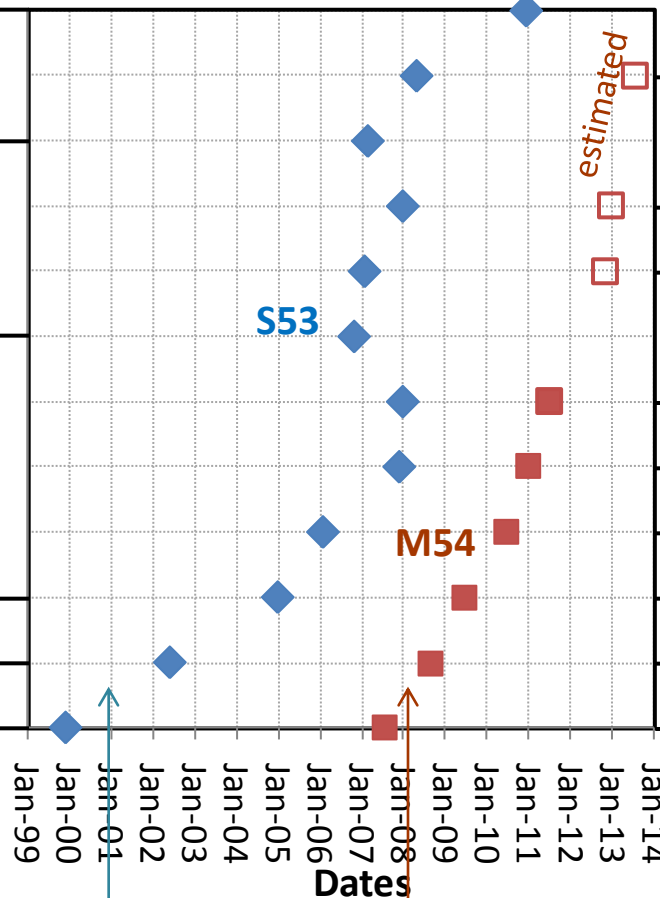
TRL6: system integration

TRL5-6: first component rig test

TRL3-4

TRL2

TRL1



5 design iterations

1 design iteration

estimated

S53

M54

estimated

estimated

estimated

estimated

estimated

estimated

