

# NCSX first wall performance

## Assumptions:

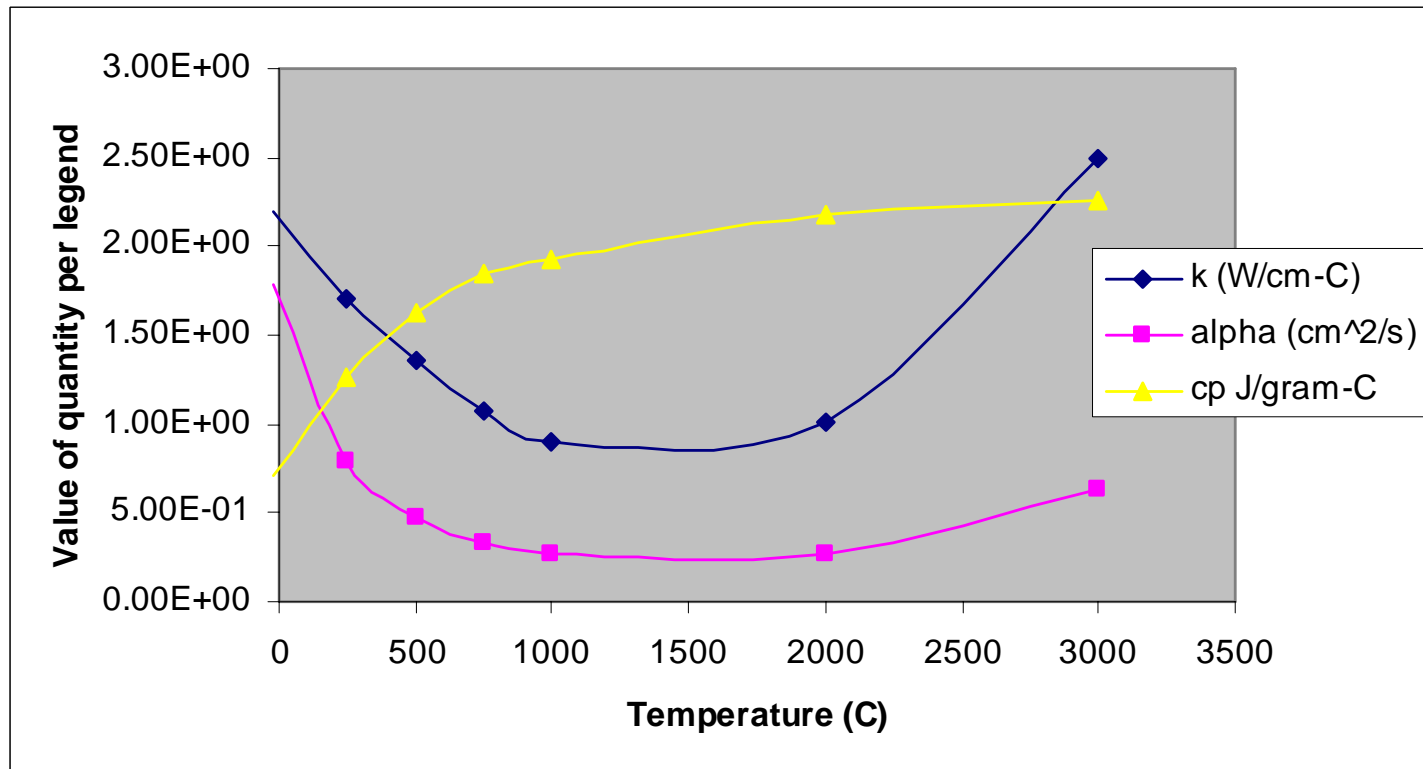
PAN carbon fiber needed to 25-28% fiber volume in the “z” direction

Thermal conductivity ~ 50 BTU/hr-ft-F at 2000 F

Density = 1.75 g/cc

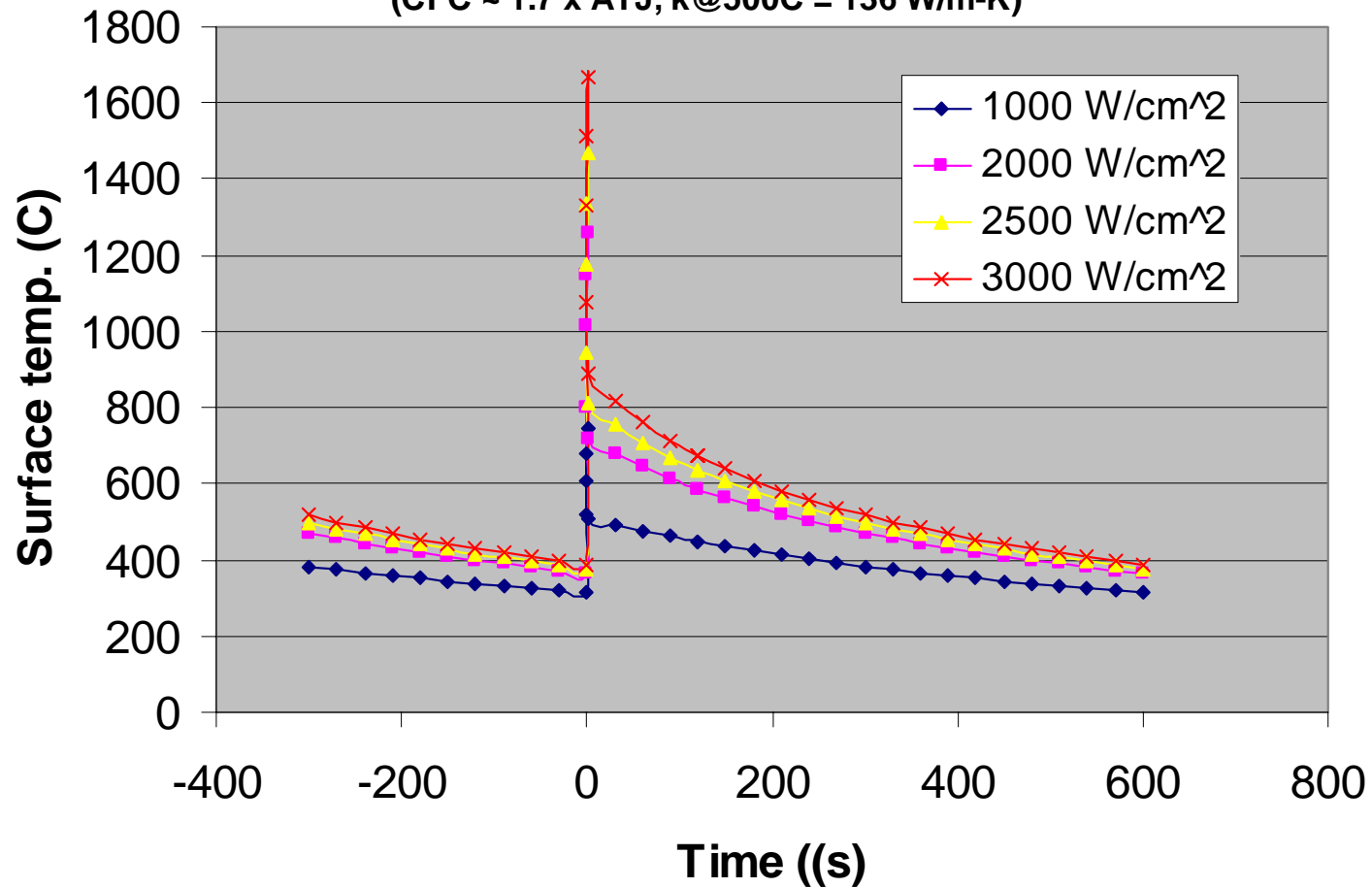
Thickness = 1 cm

Assumed properties are given in the following chart:



## Tile surface temp vs time for various surface heat flux values

Pulse length = 0.5 seconds, radiation heat sink at 150C  
(CFC ~ 1.7 x ATJ,  $k@500C = 136 \text{ W/m-K}$ )



## Tile surface temp vs time for various surface heat flux values

Pulse length = 1.2 seconds, radiation heat sink at 150C  
(CFC ~ 1.7 x ATJ,  $k@500C = 136 \text{ W/m-K}$ )

