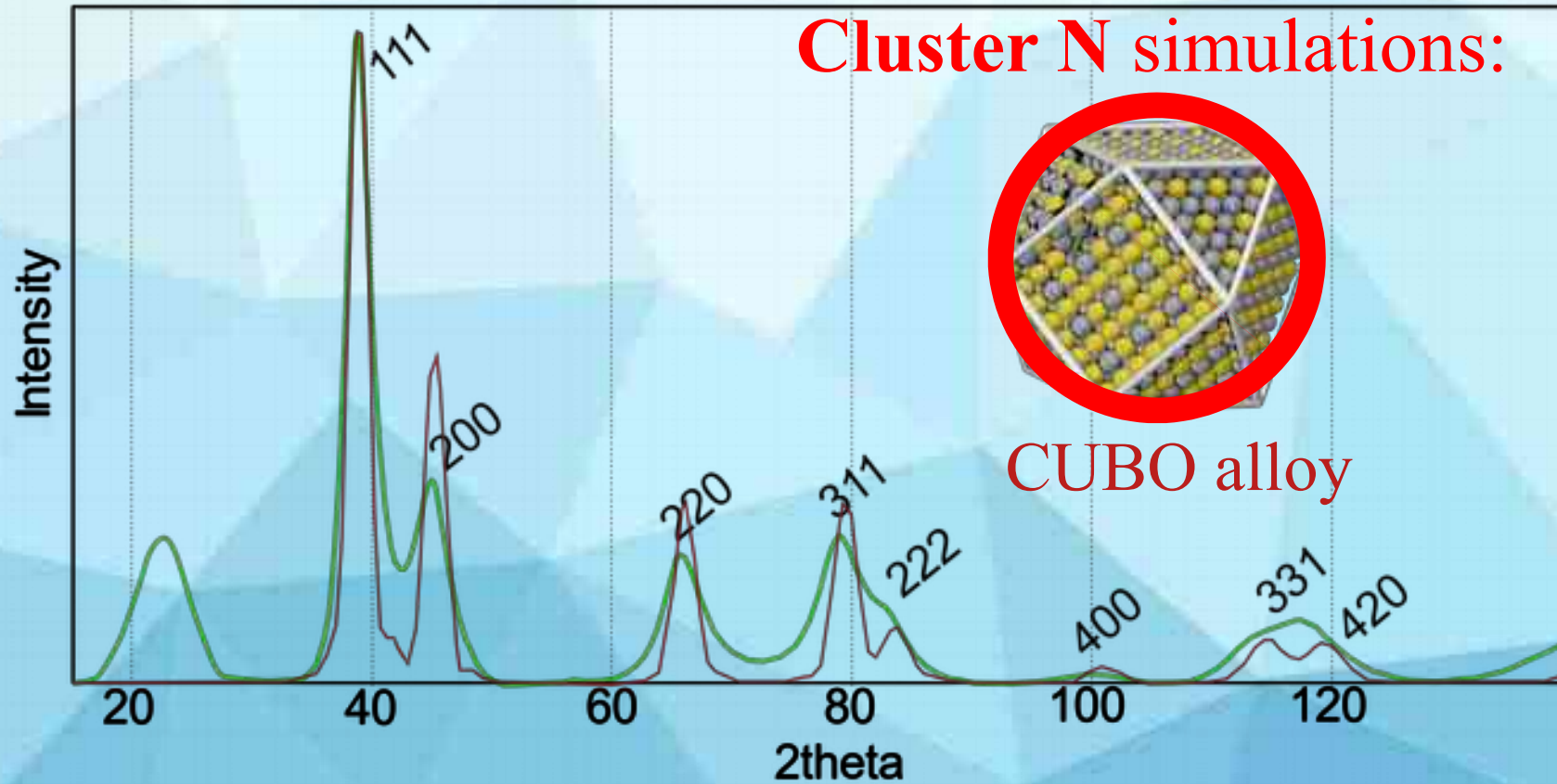


# XRD analysis



Sample #1: after the synthesis

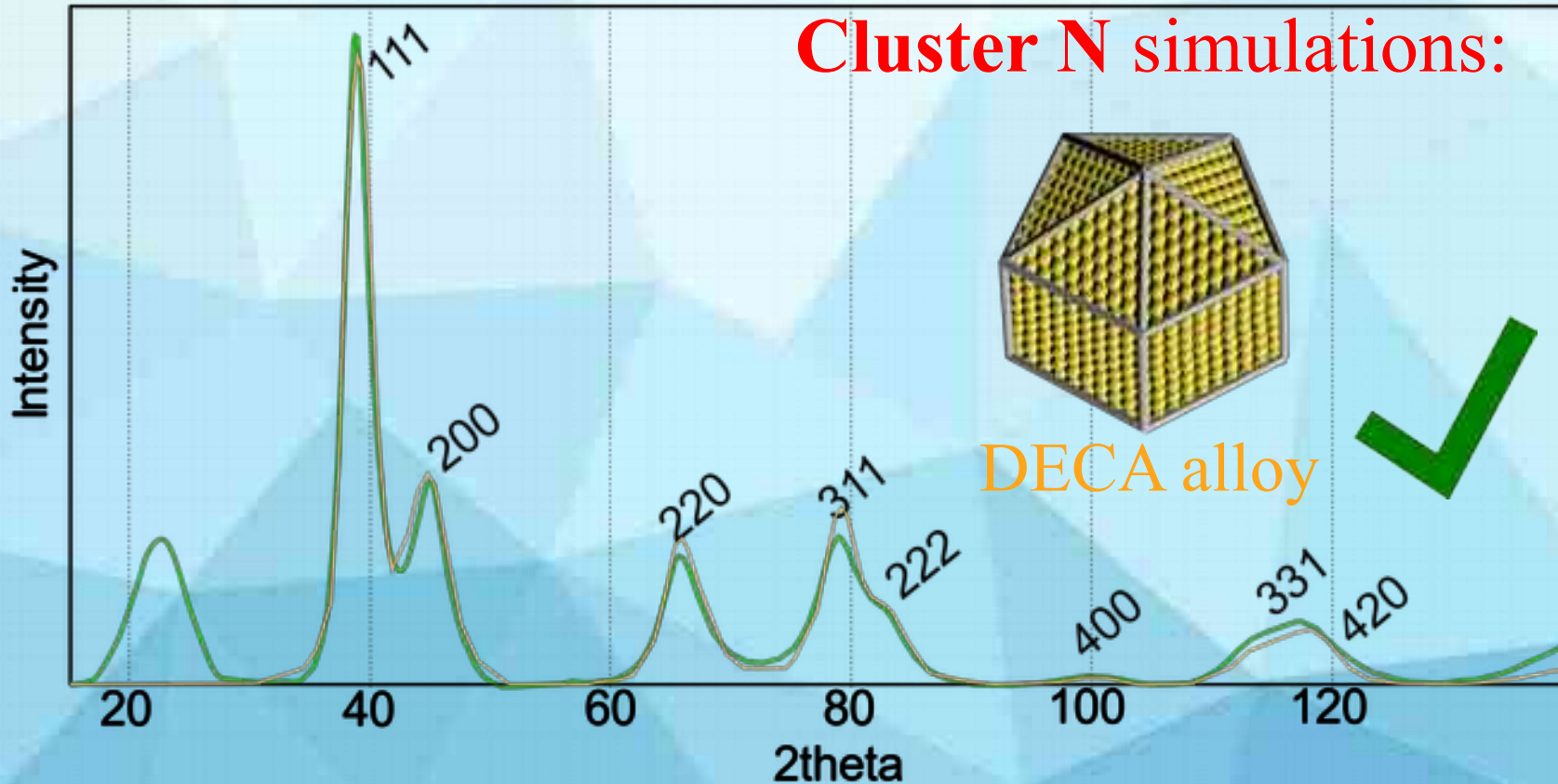


It's not CUBO structure!

# XRD analysis



Sample #1: after the synthesis



It's not CUBO structure!  
How to distinguish DECA from CUBO ?

- 200 peak intensity;
- High angle peaks;
- Distance between 111 and 200;

$\Delta(111-200)$  CUBO  $\sim 6.33$

$\Delta(111-200)$  DECA  $\sim 5.97$

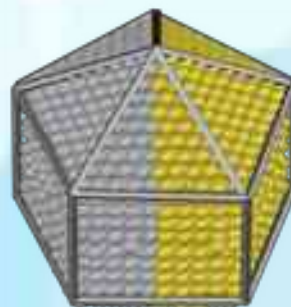
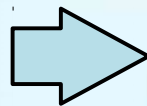
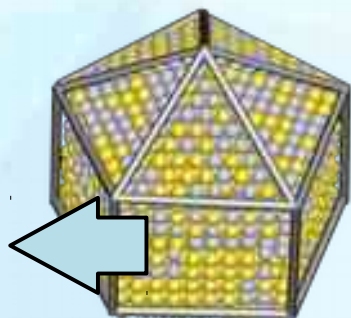
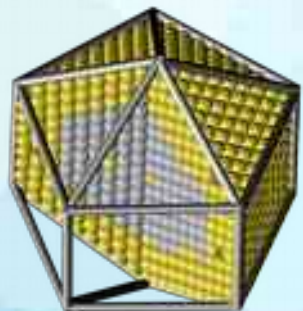
# Evolution of alloyed DECA



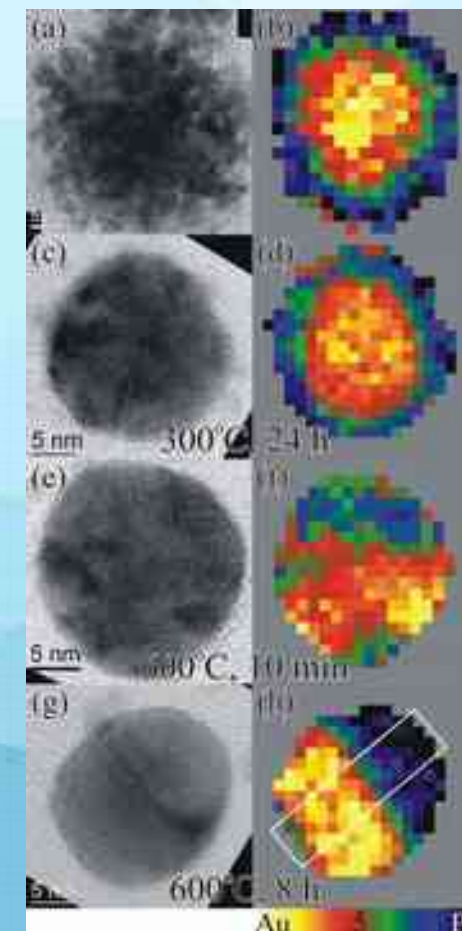
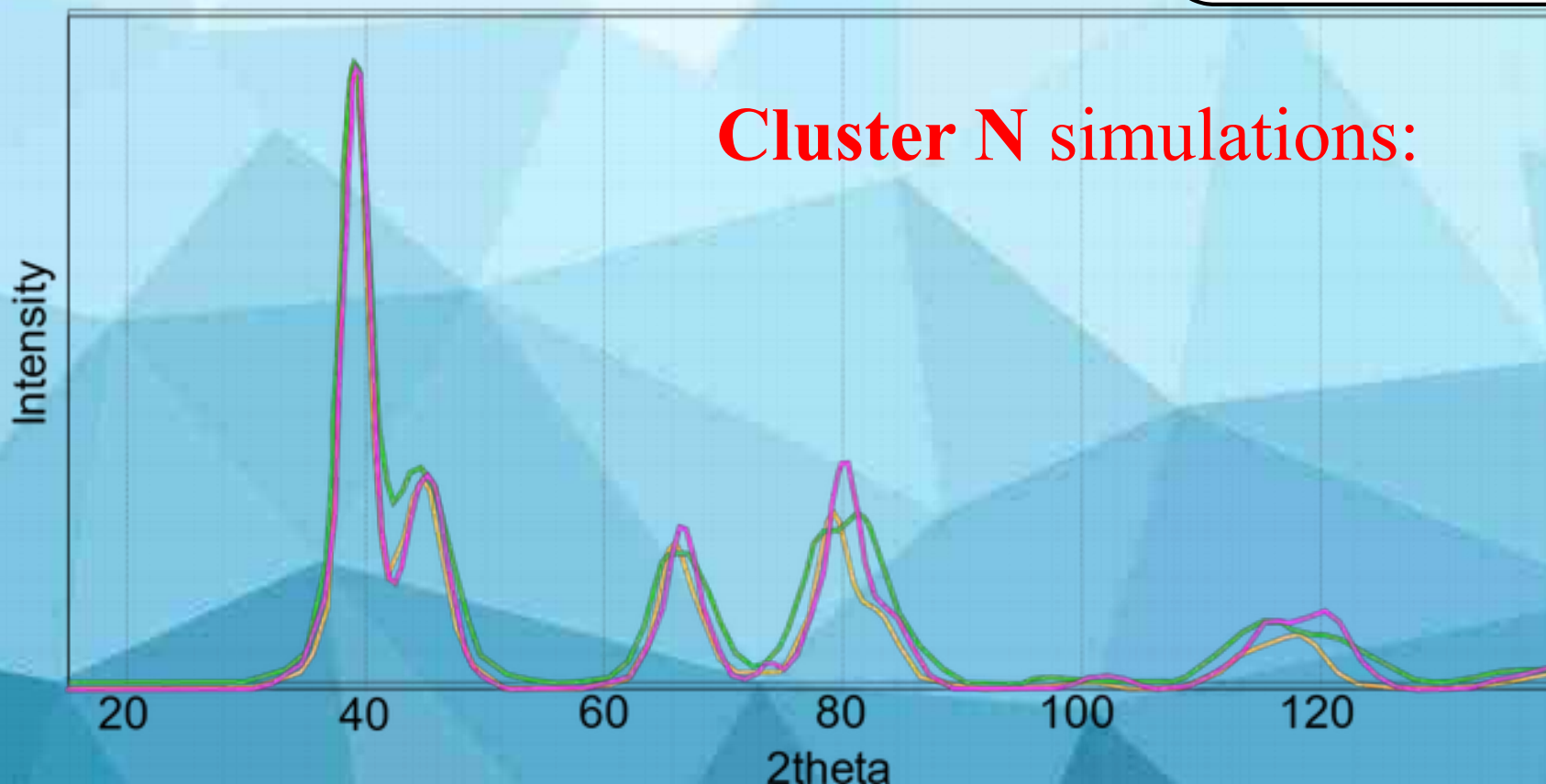
Core-shell

Alloy

Janus



Can XRD detect these transformations?

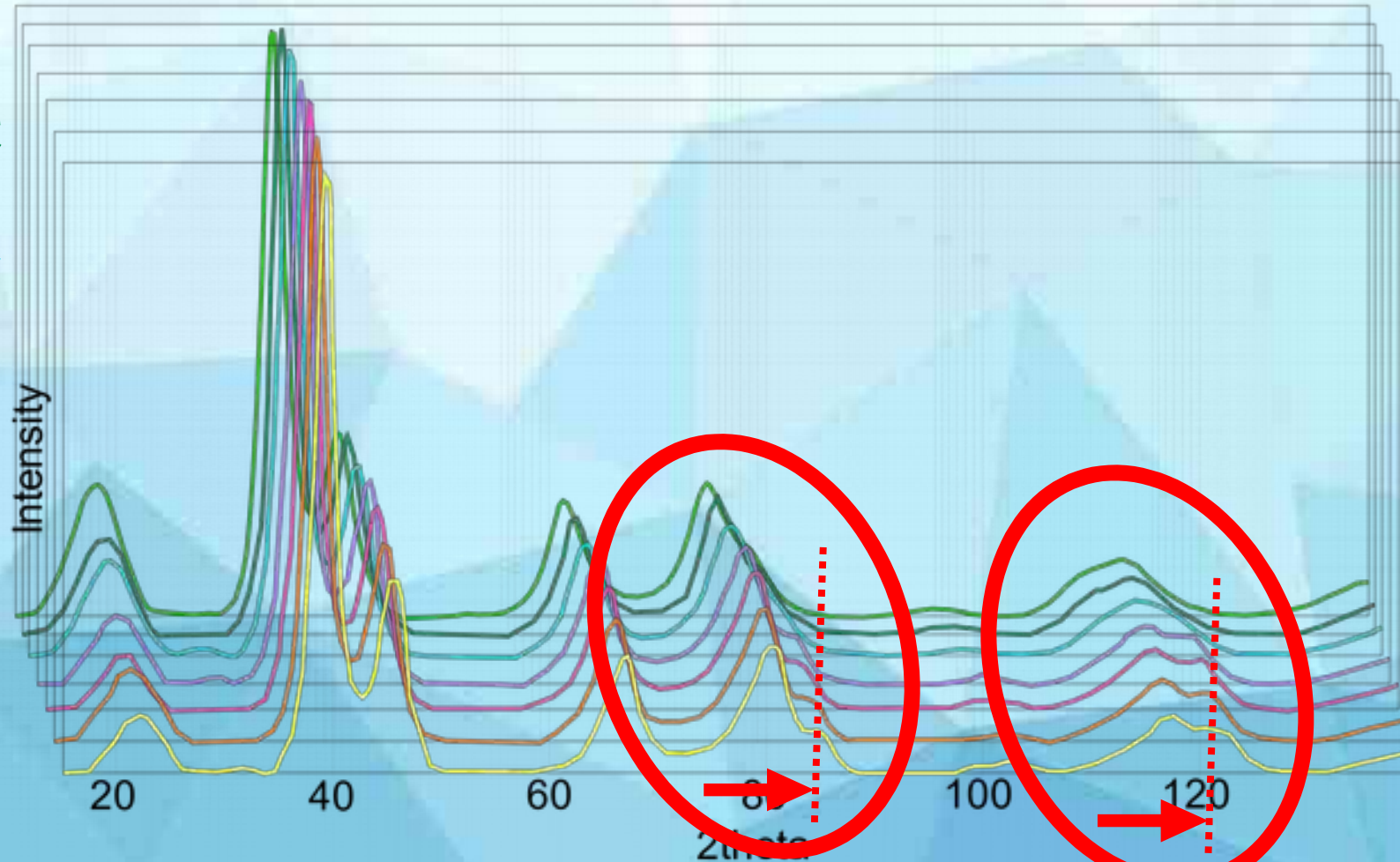


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December 2008, Pages 5972-5983

# *ex-situ* XRD data (300-600°C) :



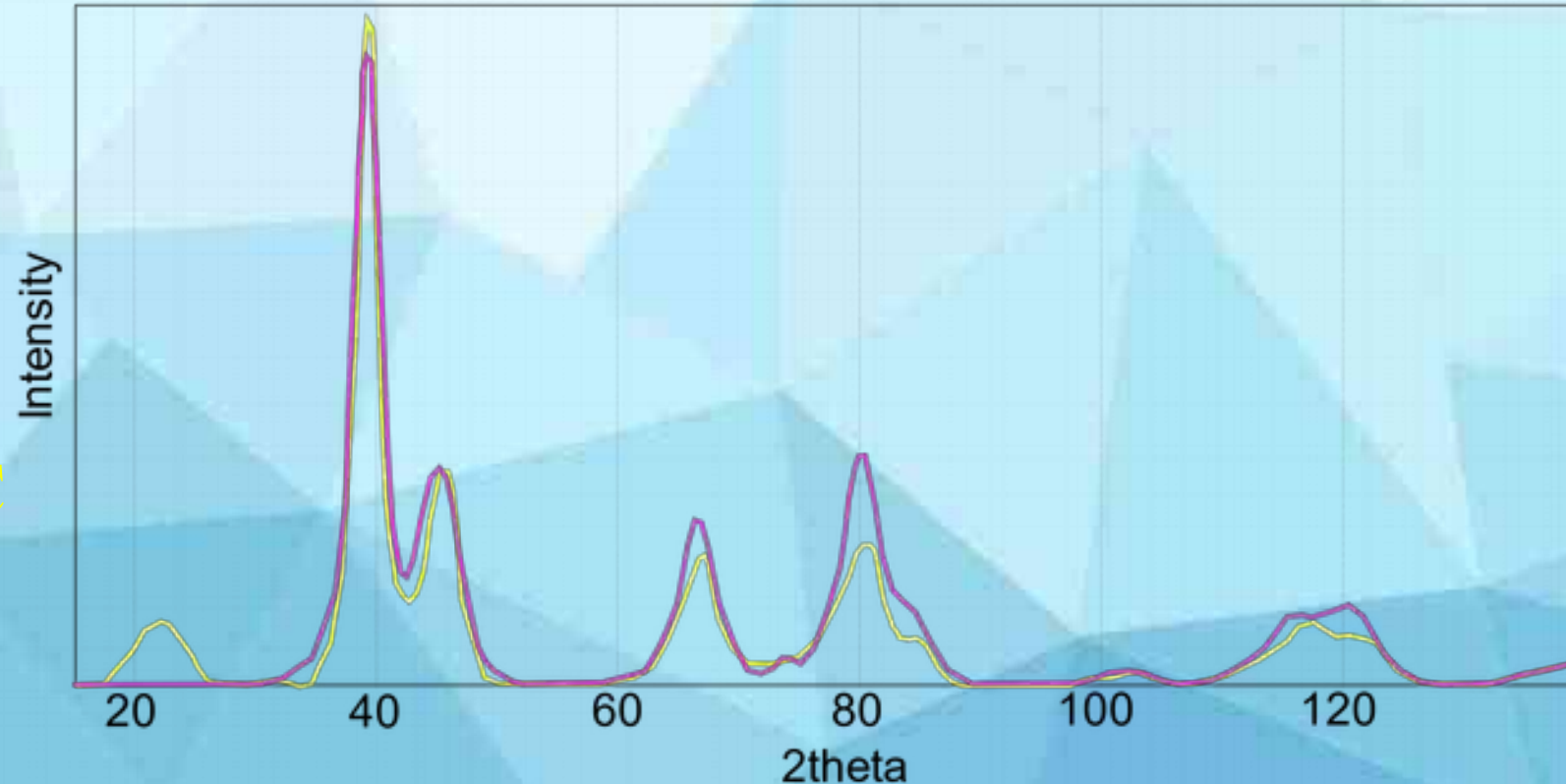
- 1) 300°C
- 2) 350°C
- 3) 400°C
- 4) 450°C
- 5) 500°C
- 6) 550°C
- 7) 600°C



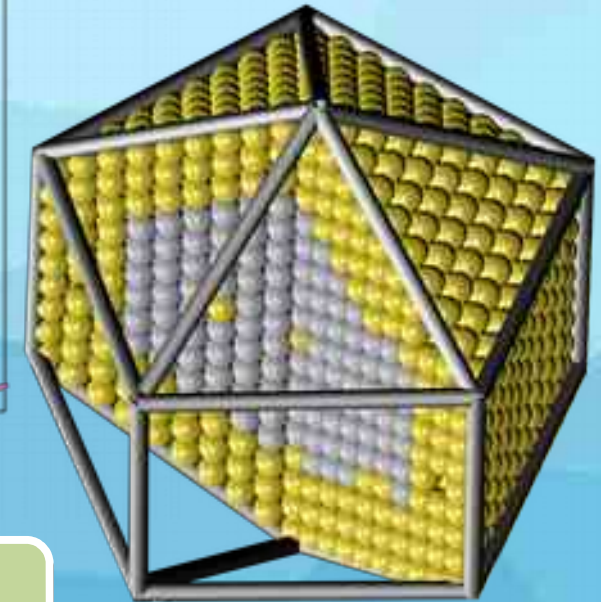
# *ex-situ* XRD data (300-600°C) :



There is only one simulated model that can describe the pattern:



7) 600°C



$\Delta(111-200) \sim 5.9$   $\Rightarrow$  Au (Shell) Pt (core) DECA