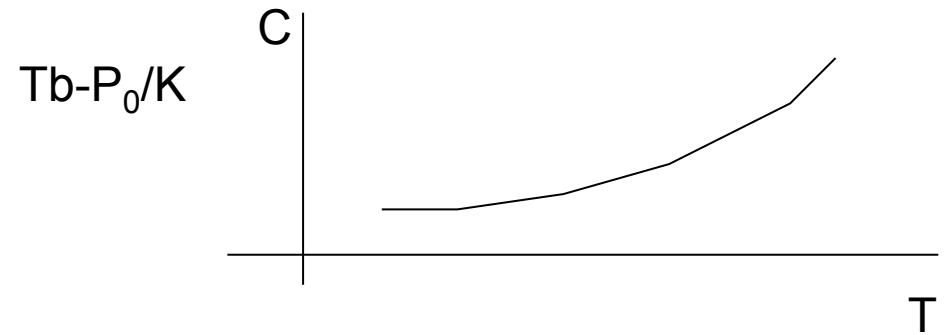
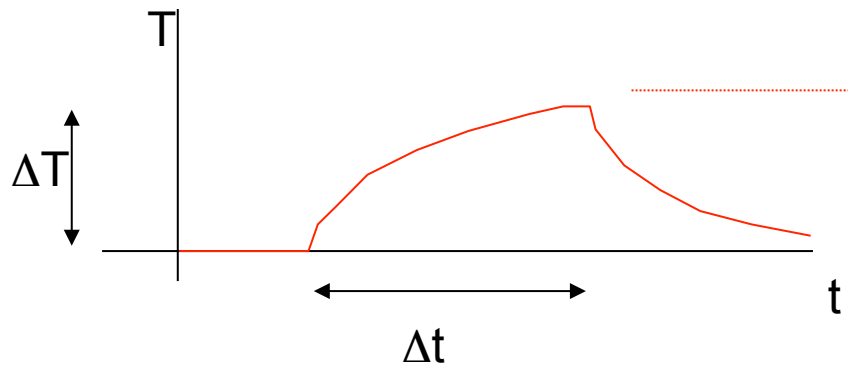


$$T = T_b + \frac{P_0}{k} \exp(-t/\tau)$$

$$\tau = C/k$$



Fit  $T = T_b + P_0/k \exp(-\tau/t)$

$\tau = C/k$

Paramètres libres  $\tau$  et  $k$

Determination du 1er tau

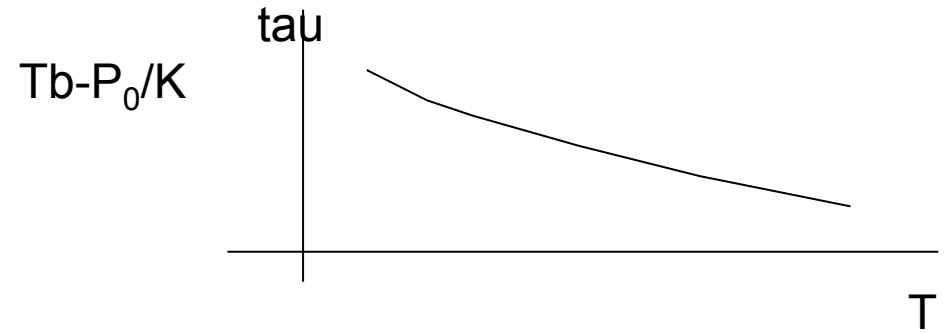
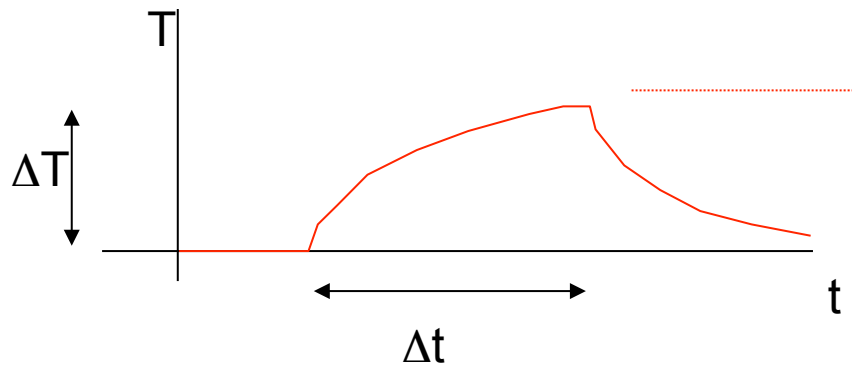
Suppose  $C = \text{Cte}$  sur DT

Soustraction addenda

Conditions de mesure

$\Delta T$  par défaut 2%

$\Delta t$  par défaut 1  $\tau$



Fit  $T = T_b + P_0/k \exp(-\tau/t)$   
 $\tau = C/k$   
 Paramètres libres  $\tau$  et  $k$

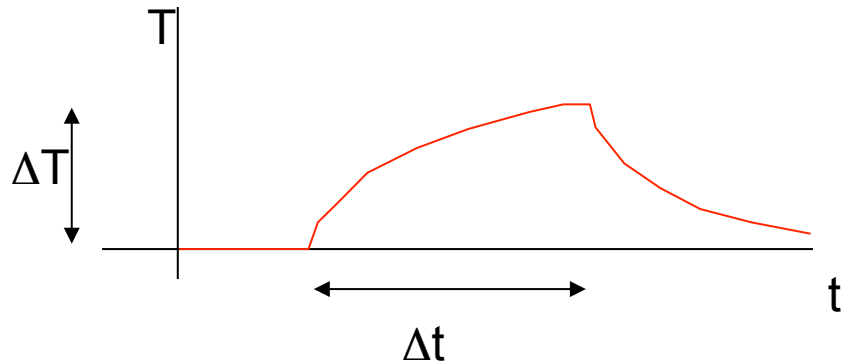
Determination du 1er tau

Conditions de mesure  
 $\Delta T$  par défaut 2%

Suppose  $C = \text{Cte}$  sur  $\Delta T$

$\Delta t$  par défaut  $1 \tau$

Soustraction addenda



Fit  $T = T_b + P_0/k \exp(-\tau/t)$

$\tau = C/k$

Paramètres libres  $\tau$  et  $k$

Conditions de mesure

$\Delta T$  par défaut 2%

$\Delta t$  par défaut 1  $\tau$

Small sample

$T < 1K$

Use 2 tau

Autres paramètres

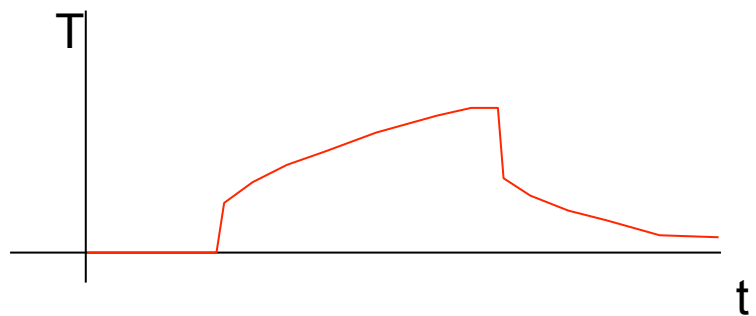
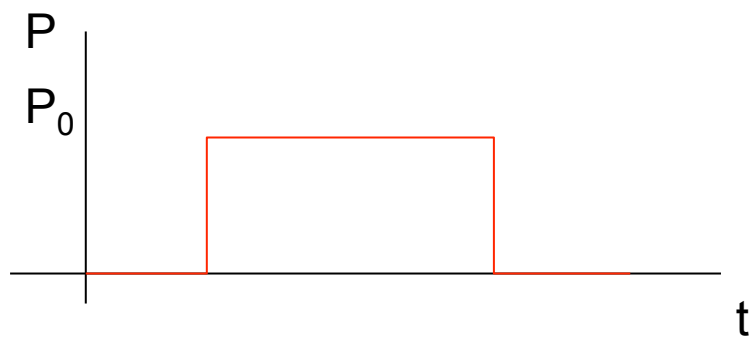
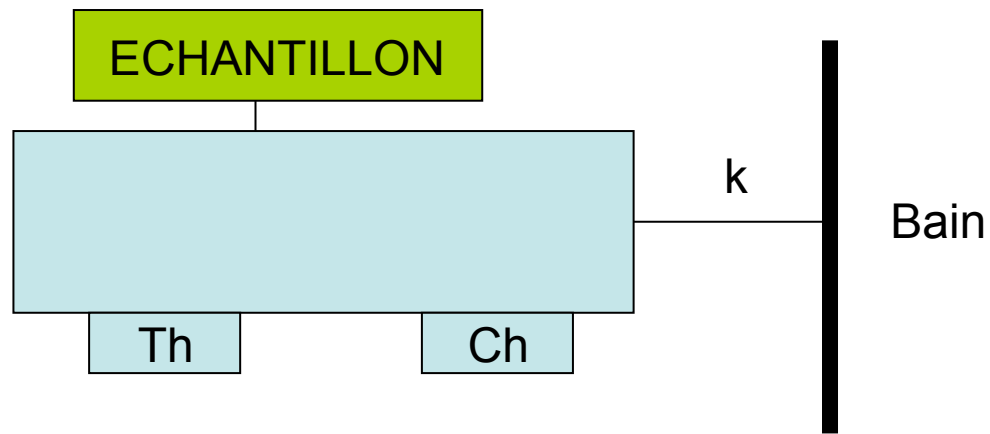
Stabilité (en % de DT)

Fixer 1er tau

(rampe en H, démarrage BT)

Critère sur tau acceptable (30%)

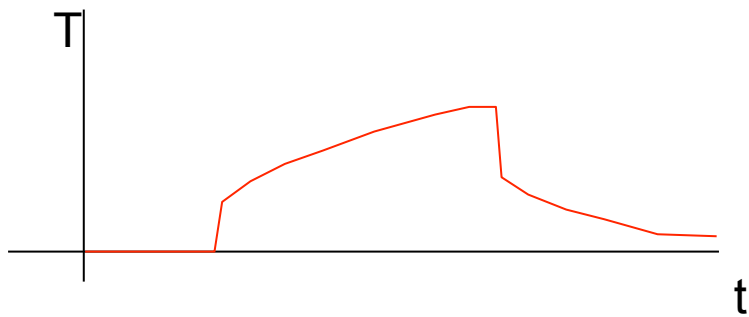
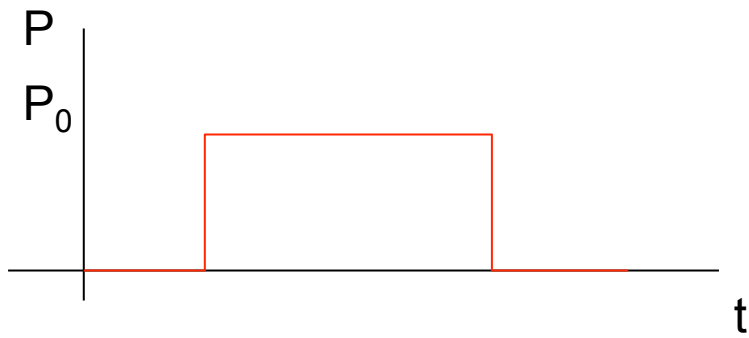
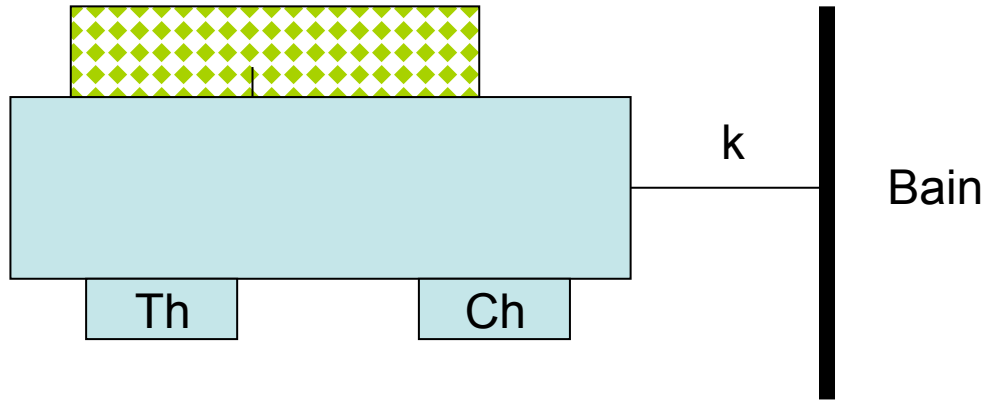
Interdire 2 tau



Calcul modèle 2 t

Sample coupling %

# Mauvais couplage interne

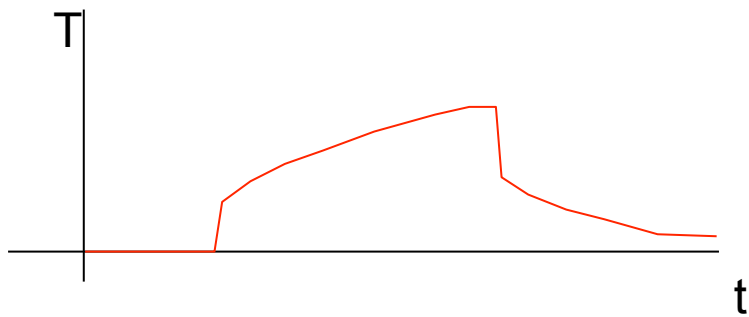
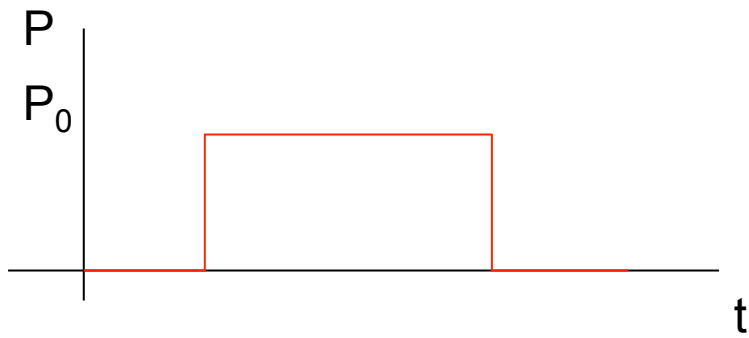
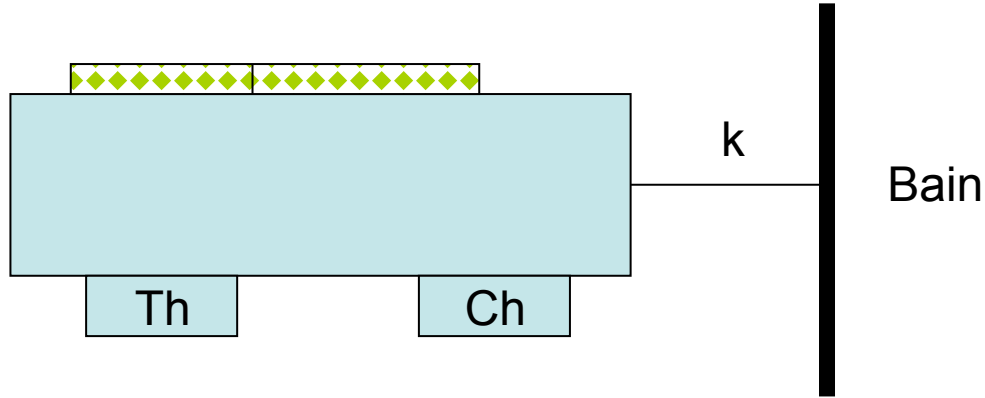


Calcul modèle 2 t

Sample coupling %

??????

# Mauvais couplage interne



Echantillon mince

Mesure longue  
10 tau

Dejouer autres pièges

Qualité du fit ?

Regarder couplage (attention si 100%)

Regarder  $k(T)$

Changer de puck

Helium condensé sur l'échantillon

Anomalie de la graisse apiezon

Regarder data "raw"

PreserveRawFiles=1 in HeatCap.ini

Lire la notice et regarder "application notes" sur [qdusa.com](http://qdusa.com)



Autres astuces en vrac

Installation HC à basse température

Accepter défaut thermometre

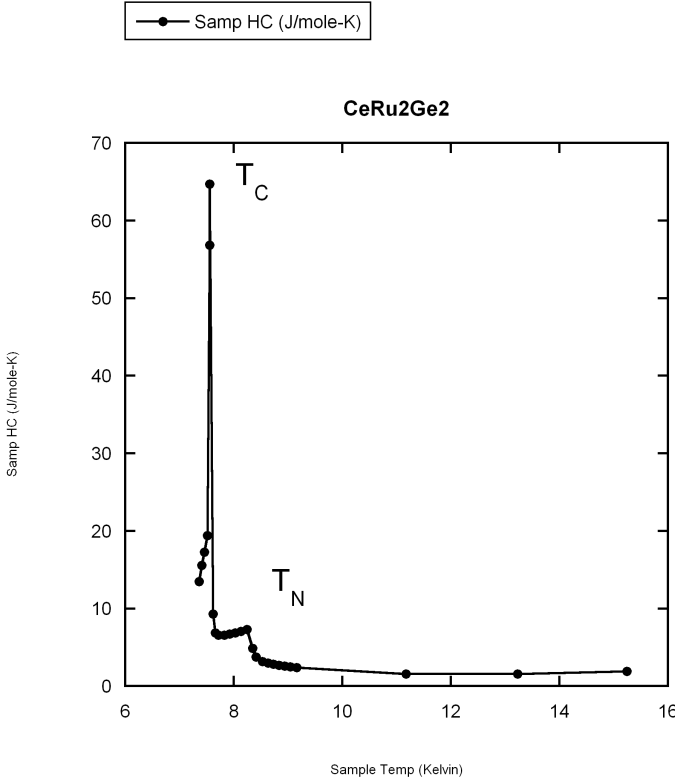
Refroidir sous gaz d'échange (surtout  $^3\text{He}$ )

Ne pas changer cable après installation option avec  $^3\text{He}$

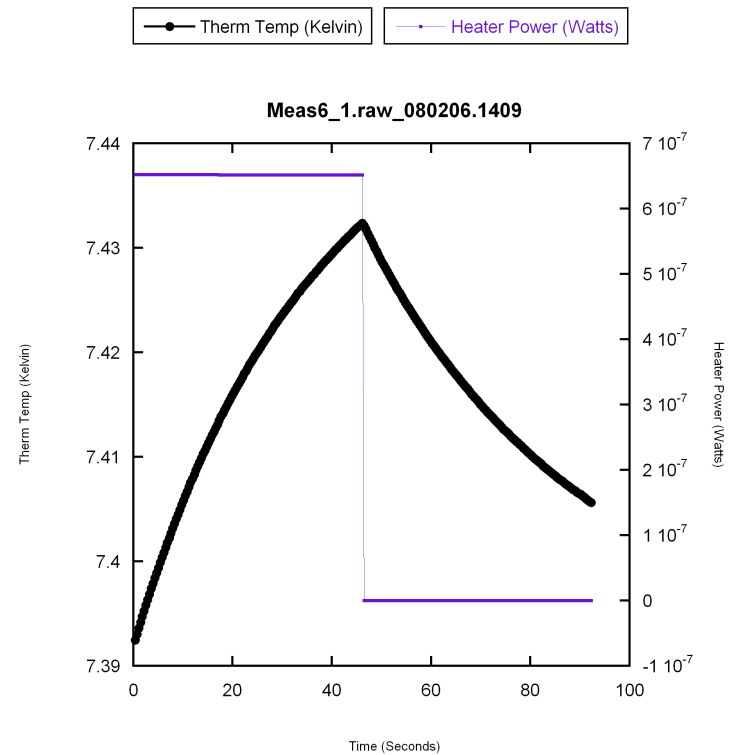
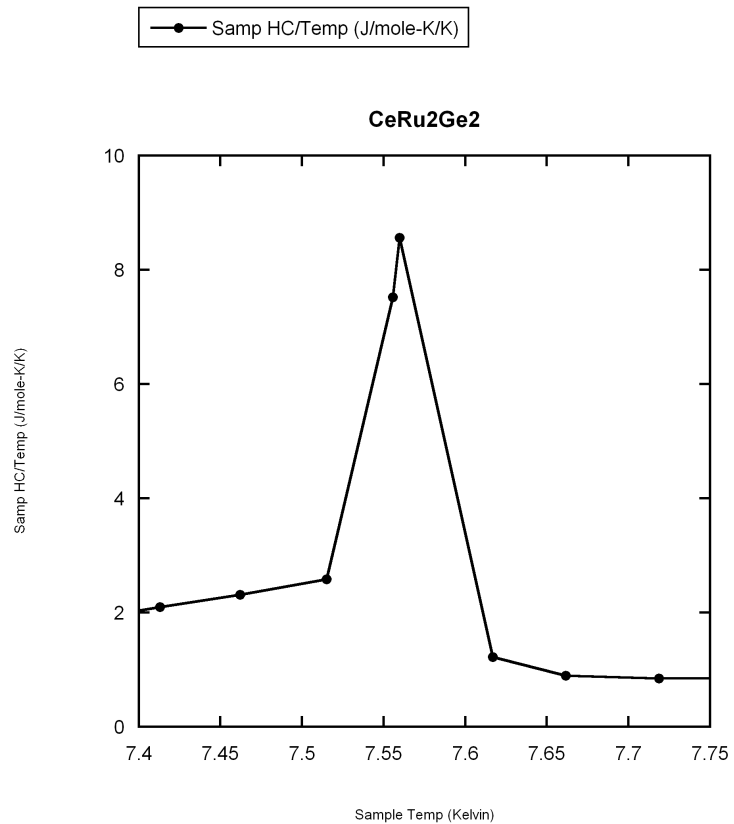
Lorsque  $C=Cte$  n'est plus vrai  
Transition de phase étroite

1/ diminuer DT

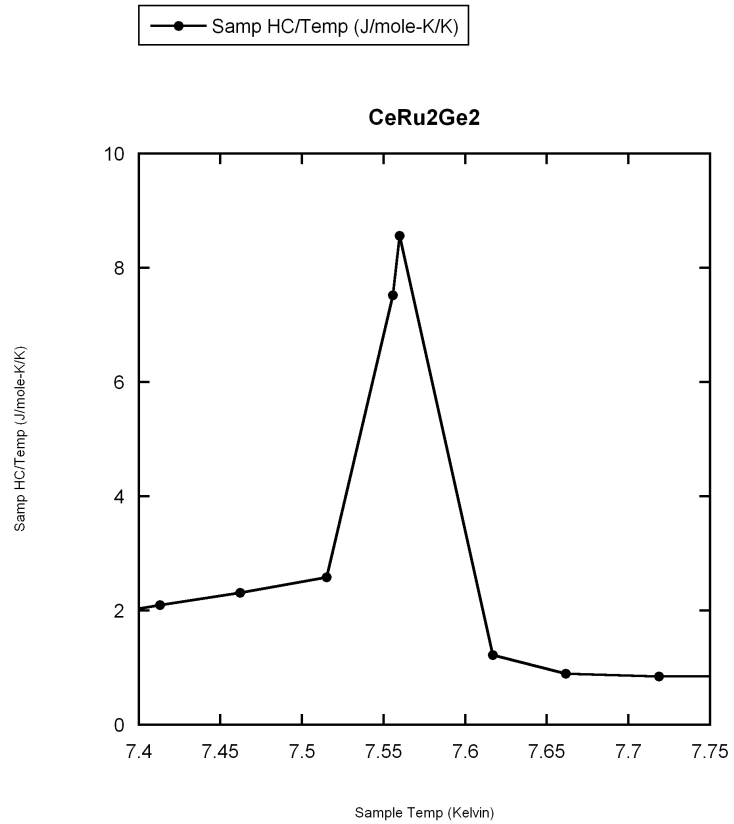
Lorsque  $C=Cte$  n'est plus vrai  
Transition de phase étroite



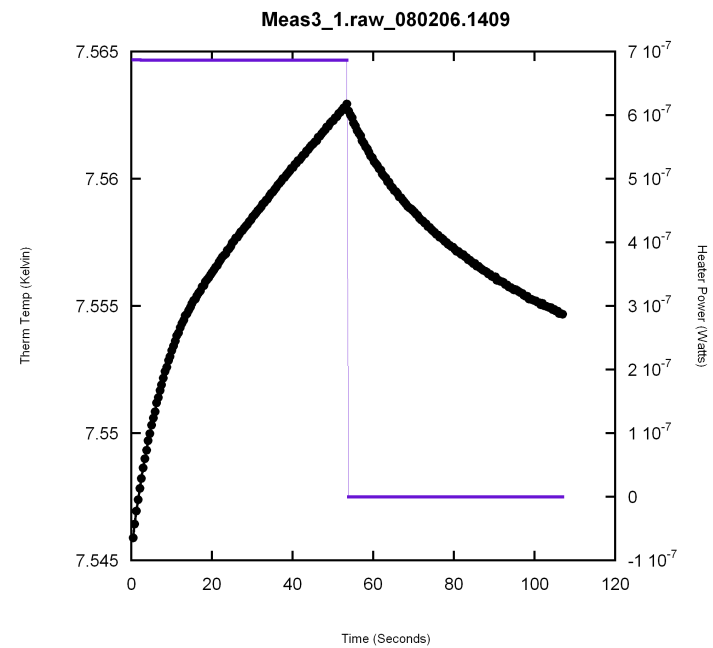
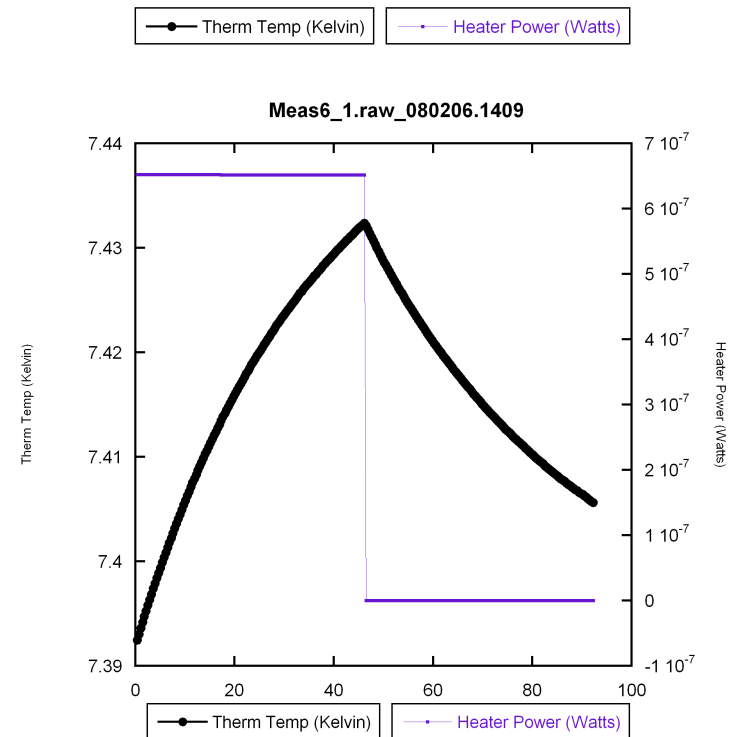
# Lorsque $C=Cte$ n'est plus vrai Transition de phase étroite

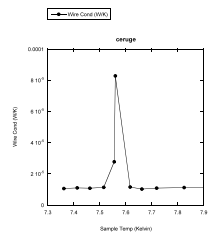


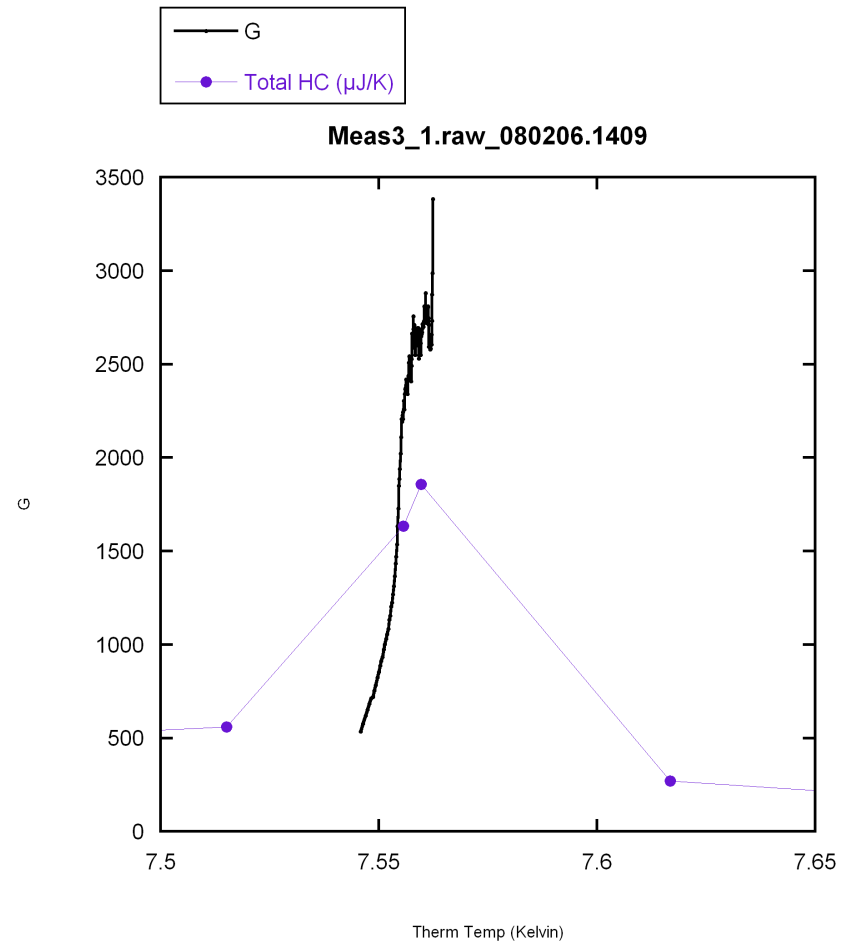
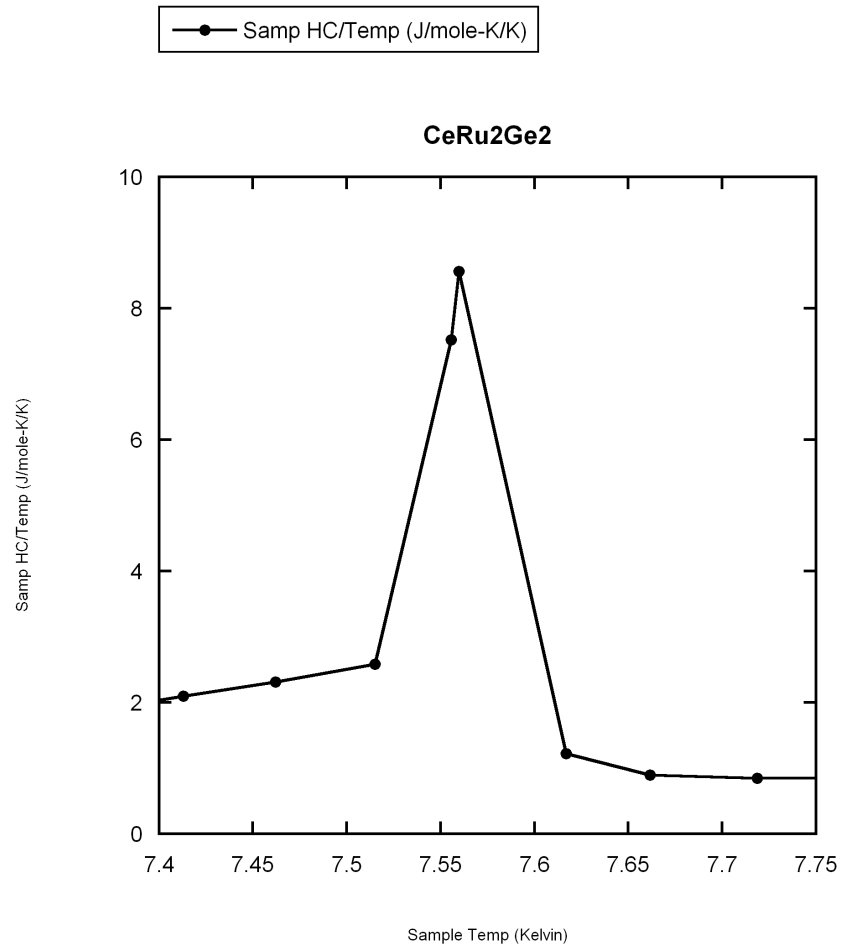
Lorsque  $C=Cte$  n'est plus vrai  
Transition de phase étroite



$$CdT/dt = -k(T-T_b) + P(t)$$









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## Critical examination of heat capacity measurements made on a Quantum Design physical property measurement system <sup>☆</sup>

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