

# *SPOT*

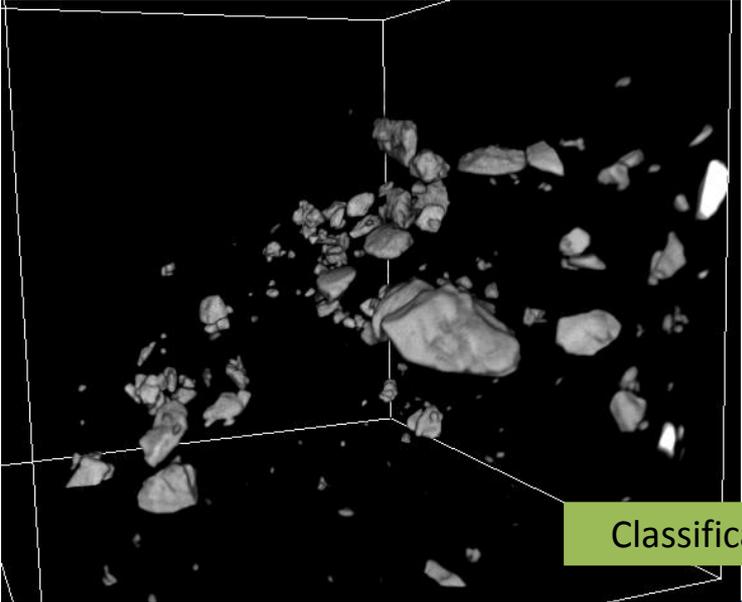
# *MODÉLISATION DES PROCÉDÉS*

Francesco DELLORO

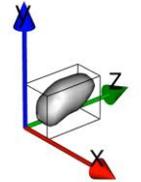
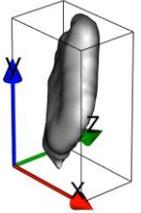
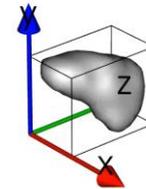
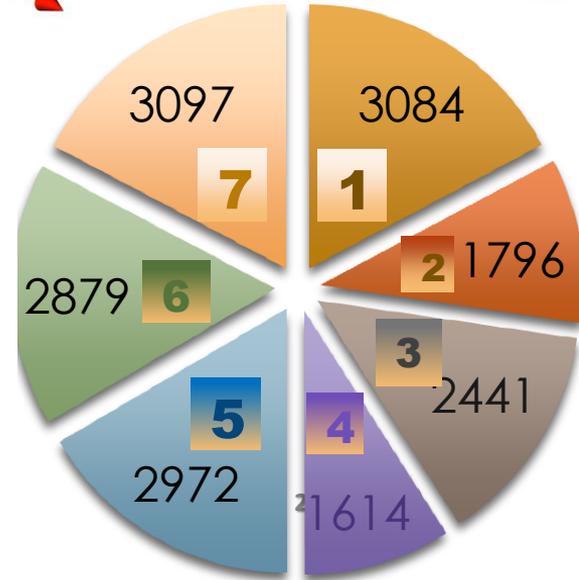
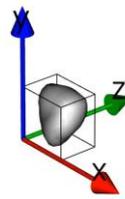
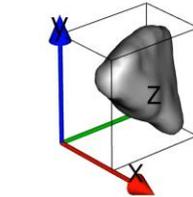
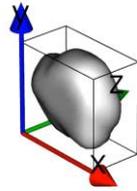
SIP

## • Caractérisation 3D

Image tomographique de la poudre  
(Cube d'environ 1 mm<sup>3</sup>)



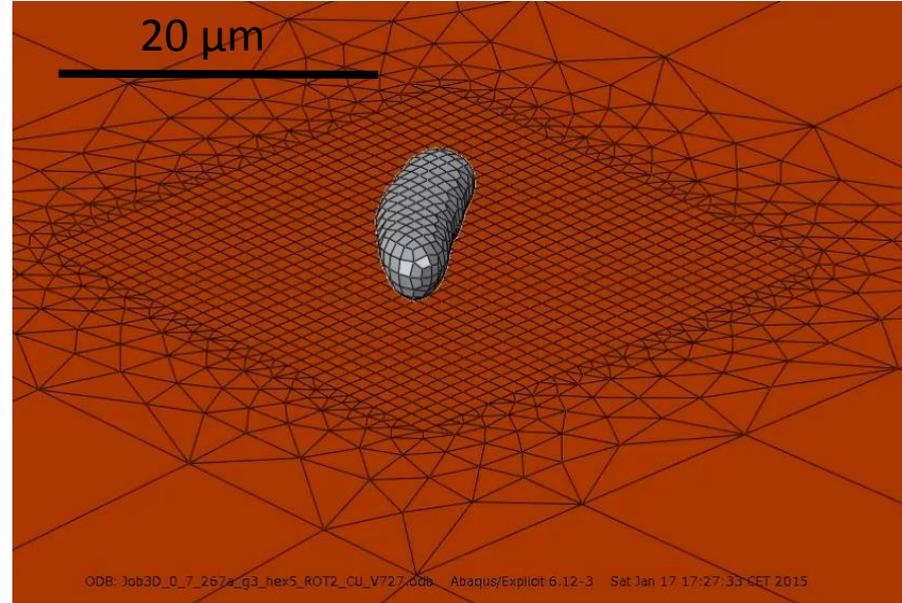
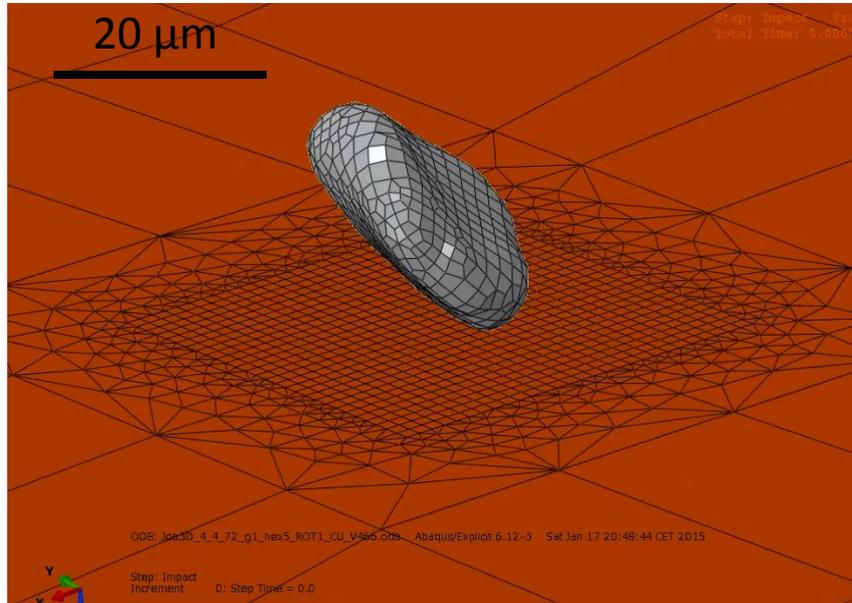
Classification



Axes = 15  $\mu$ m

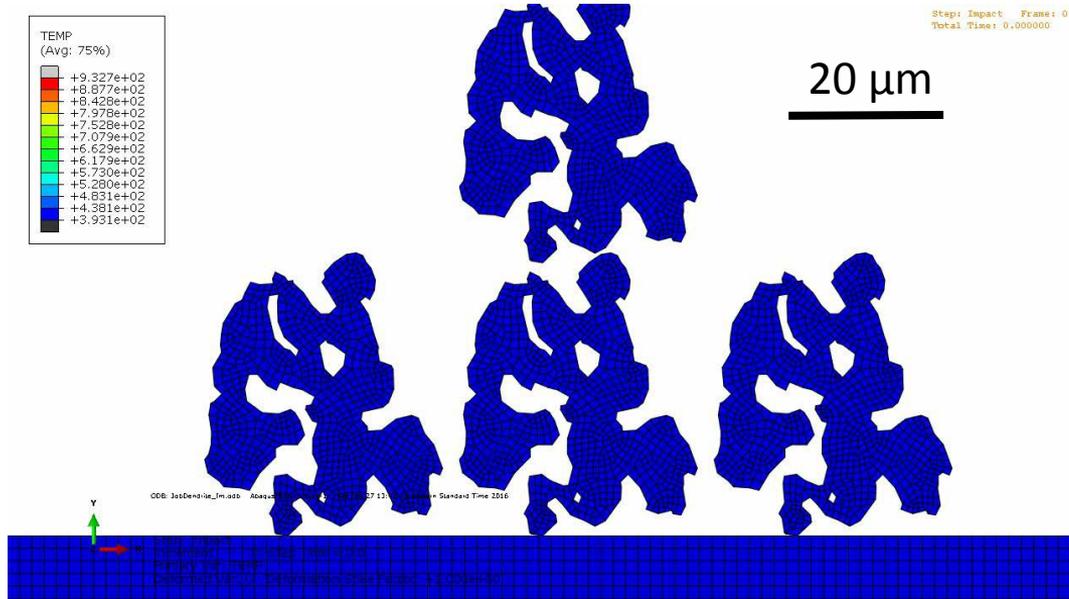
- **Simulation de l'impact**

Par éléments finis (Abaqus/Explicit), pour des particules réelles



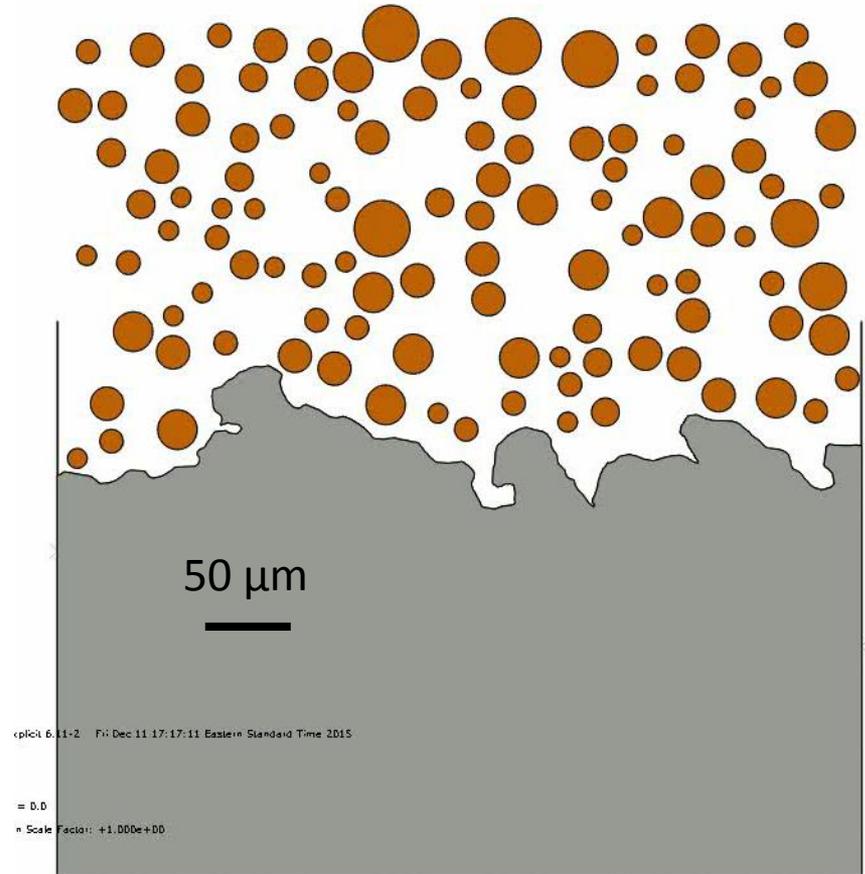
## • Simulation de l'impact

Par éléments finis (Abaqus/Explicit), pour des particules réelles



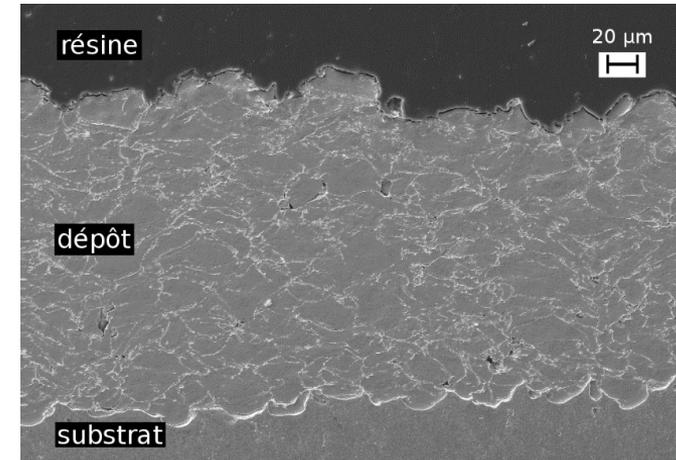
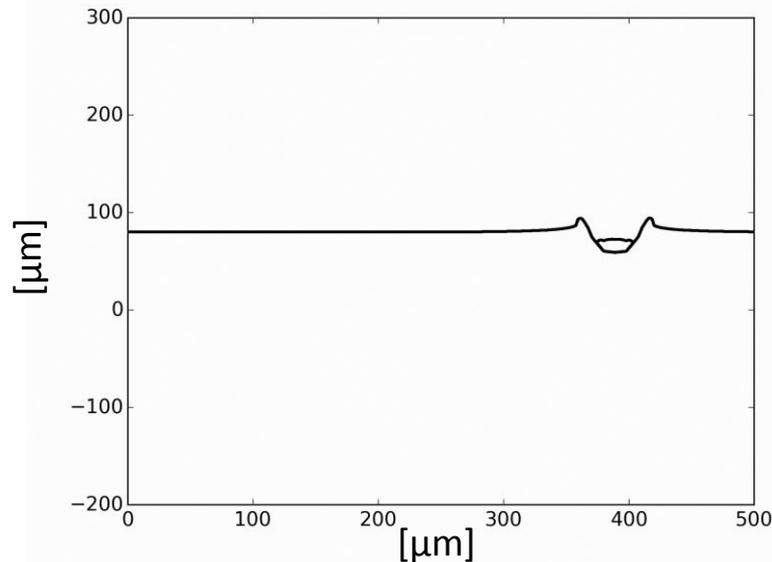
- **Simulation de l'impact**

Par éléments finis (Abaqus/Explicit),  
Simulation de la construction d'un dépôt



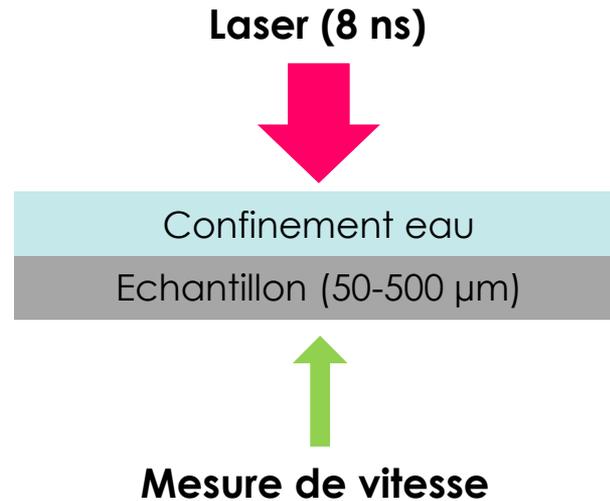
- **Modèle de construction du dépôt**

Par empilement des particules individuelles. Permet de suivre l'évolution de la microstructure d'un dépôt au long de sa formation.



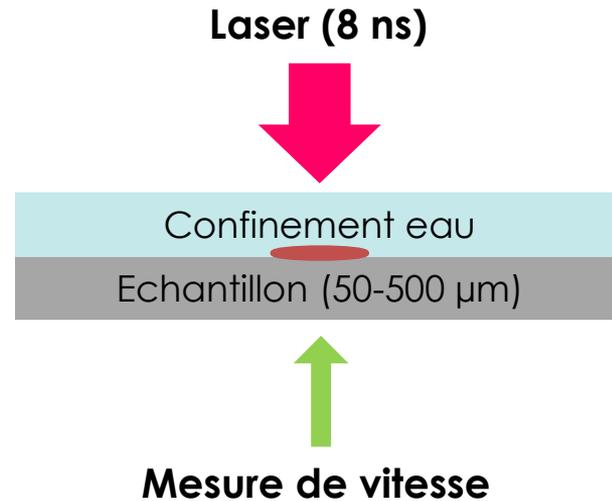
- **Choc laser : le principe**

1. Le laser pulsé illumine la cible



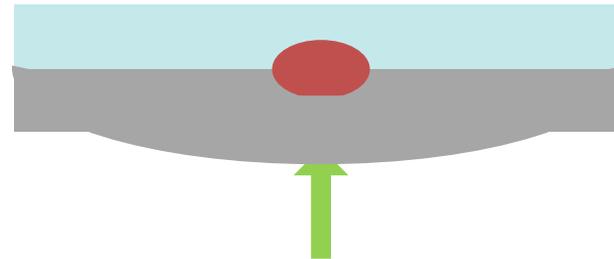
- **Choc laser : le principe**

2. Création et expansion du plasma



- **Choc laser : le principe**

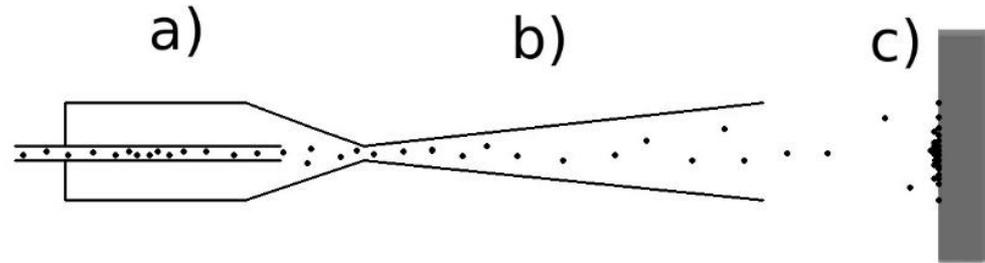
3. Mise en vitesse de l'échantillon  
et déformation plastique



**Mesure de vitesse**

## • Choc laser et cold spray

- a) Injection des particules
- b) Accélération des particules
- c) Impact sur le substrat



- d) Source laser
- e) Medium d'accélération
- f) Impact sur le substrat

