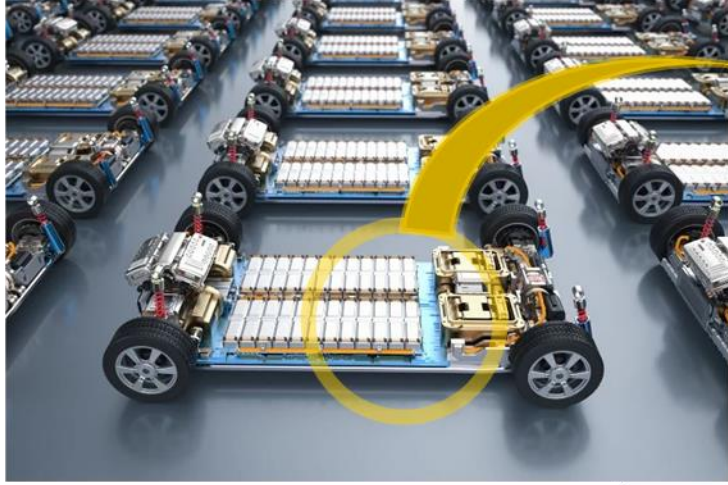


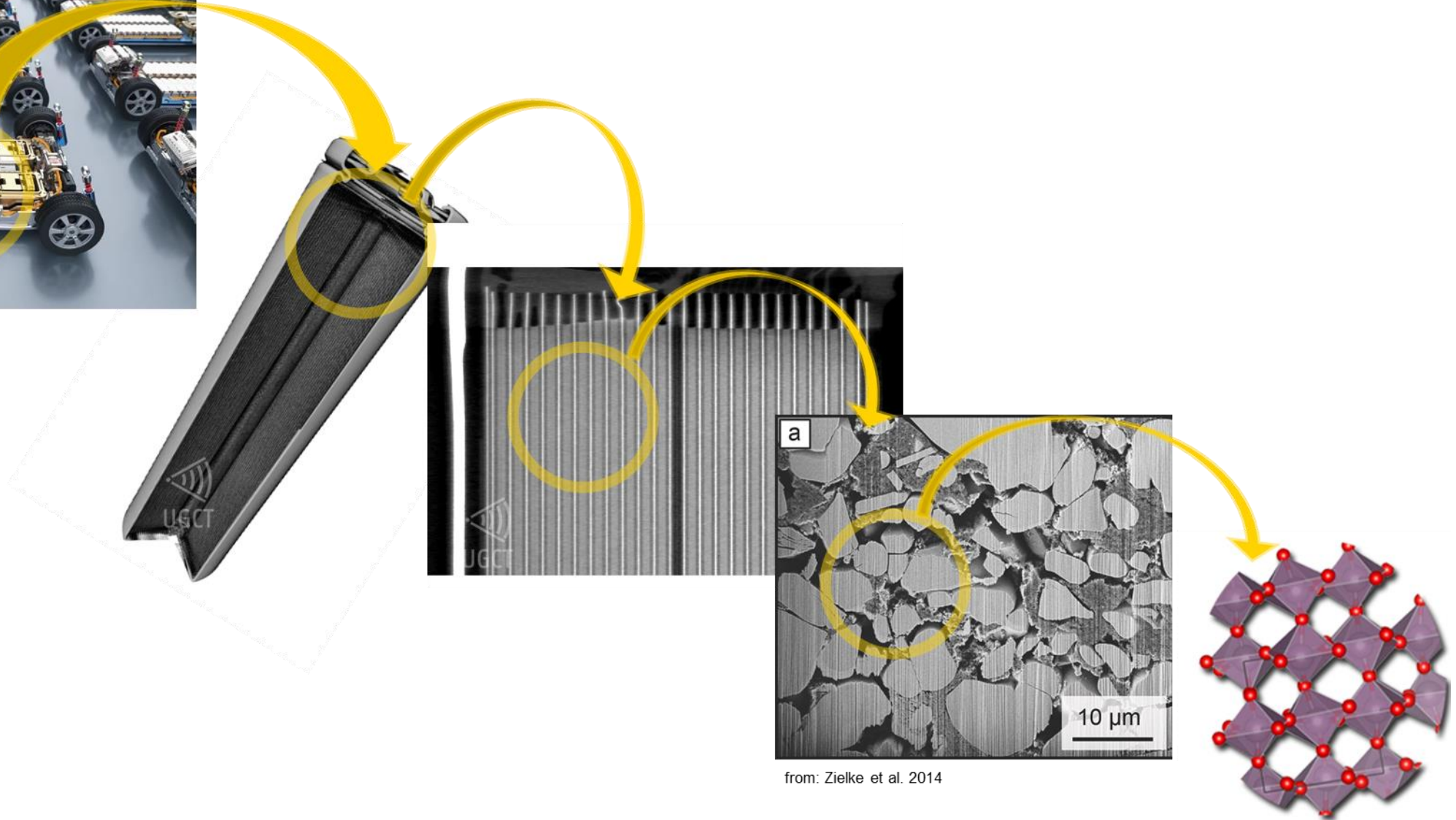
Battery material research @ UGent

Arjen Mascini 18-06-2024

Batteries: a multiscale characterization challenge



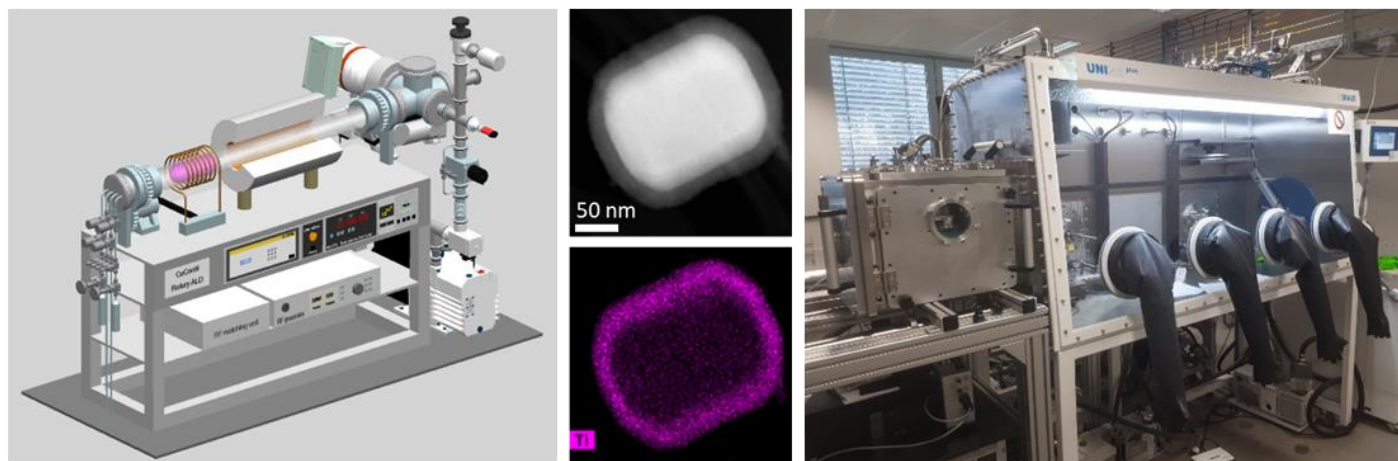
courtesy: Adobe stock



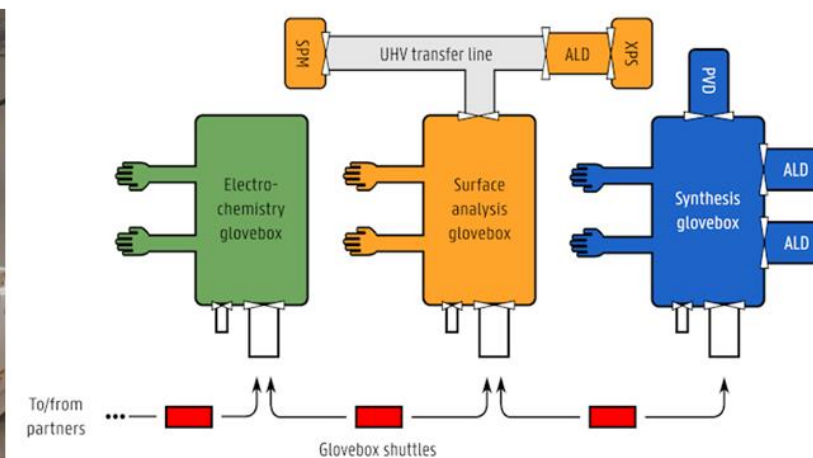
from: Zielke et al. 2014

THIN FILMS & surface science

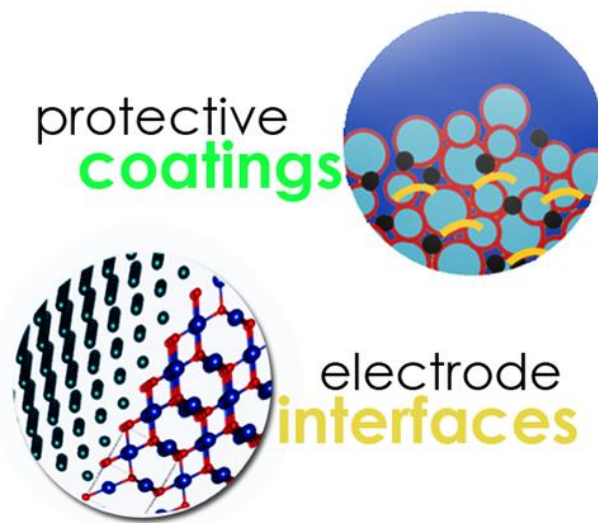
Conformal coating of battery materials via
vacuum-based thin film deposition methods (ALD, PVD)



Integrated glovebox infrastructure for
surface characterisation and modification of battery materials



Thin film model systems
3D-structured electrodes
Cathode powders (LMO, NMC)
Anode metal foil (Li, Na)



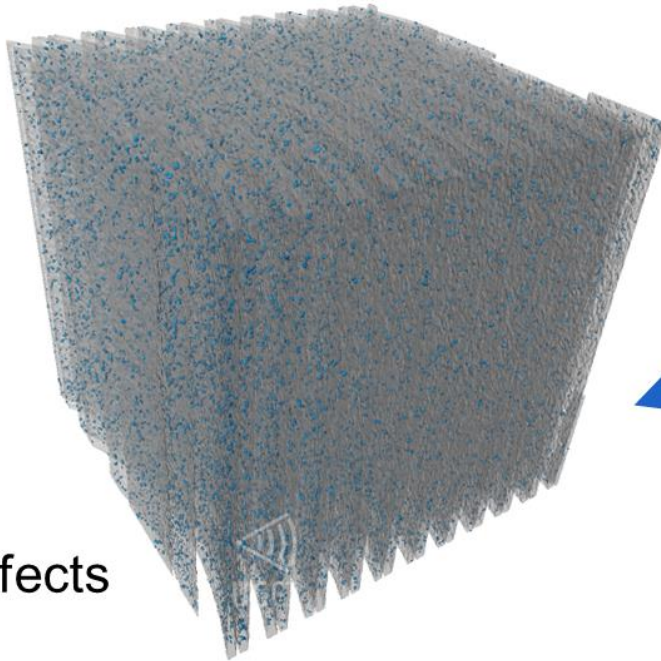
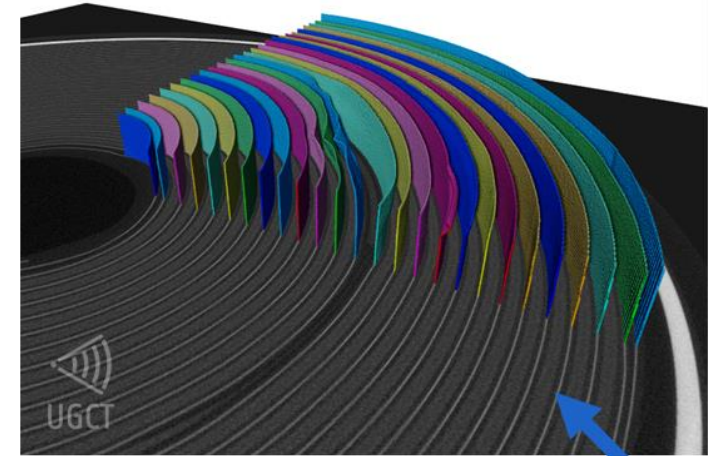
Improve cyclability
Enhance rate capability
Suppress dendrite formation

Projects
SOSLION, XL-LION,
FUGELS, MESHBAT

X-ray tomography @ UGCT

- Non-destructive 3D imaging
- (automated) defect detection
- Quantification of porosity/grains/etc.
- Digital twin creation
- 4D Load-unload cycling

tab defects



electrode defects



Arjen Mascini

iMATCH platform coordinator



E arjen.mascini@ugent.be
T +32 456 08 38 78

More info:

www.ugct.ugent.be

www.cocoon.ugent.be

