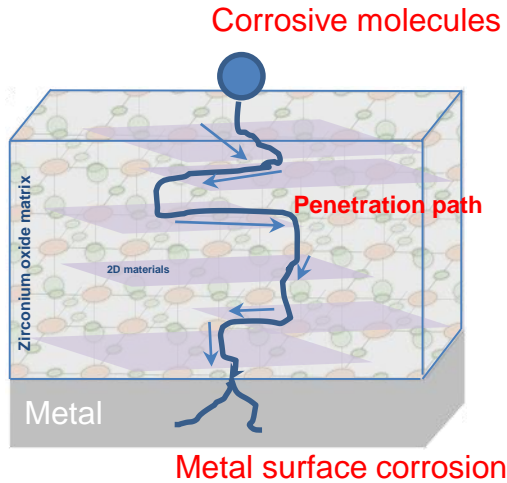




# Study of anticorrosion property of 2-Dimensional material charged zirconium oxide coating on metal surface

## Context

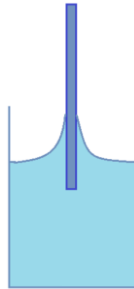
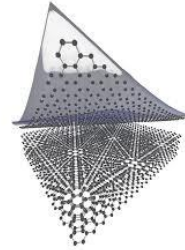
### Metal corrosion immersed in solution



- Torture of penetration paths allowing less corrosion
- Charging of 2-Dimensional layered like Graphene oxide, hexagonal boron nitride (BNNs) and Molybdenum Sulfide
- Zirconium (ZrO) based inorganic coating charged for Medical, energy plant apps

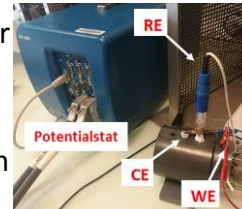
## Method and tools

- Mechanical exfoliation by Ultrason in liquid solution
- Diverse centrifuge time to control particle size
- Pure liquid exfoliation

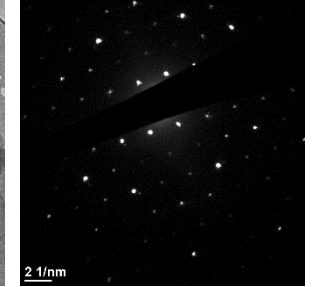
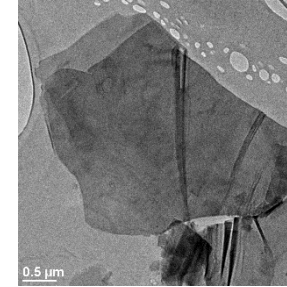


- Synthesis by Sol Gel method
- Composition modification by multiple precursor (Zr, Si)
- Different sol gel matrix : emphasize the role of 2D materials
- Dip coating controlling thickness

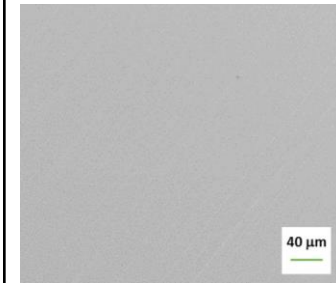
- Electrochemical Impedance Spectroscopy
- Numerical fittings in order to understand the role of 2D nano chargers
- Long term duration test in NaCl 30g/L



## Results



- exfoliation of thin layered 2D Graphene oxide



- Defect-free ZrO/BNNs coating
- Pure capacitive in long term

