



# Modelling the degradation of Cadmium pigments

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# CADMIUM PIGMENTS



## Aim of the project

- ❖ Characterize, monitor and model the degradation of Cadmium pigments

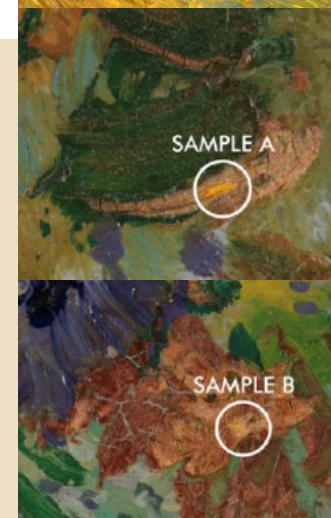
## Art history:

- 1817 Cd discovery (Stromeyer)
- 1840's commercialization
- 1910 – 1920 affordability, Cd Yellow and Red



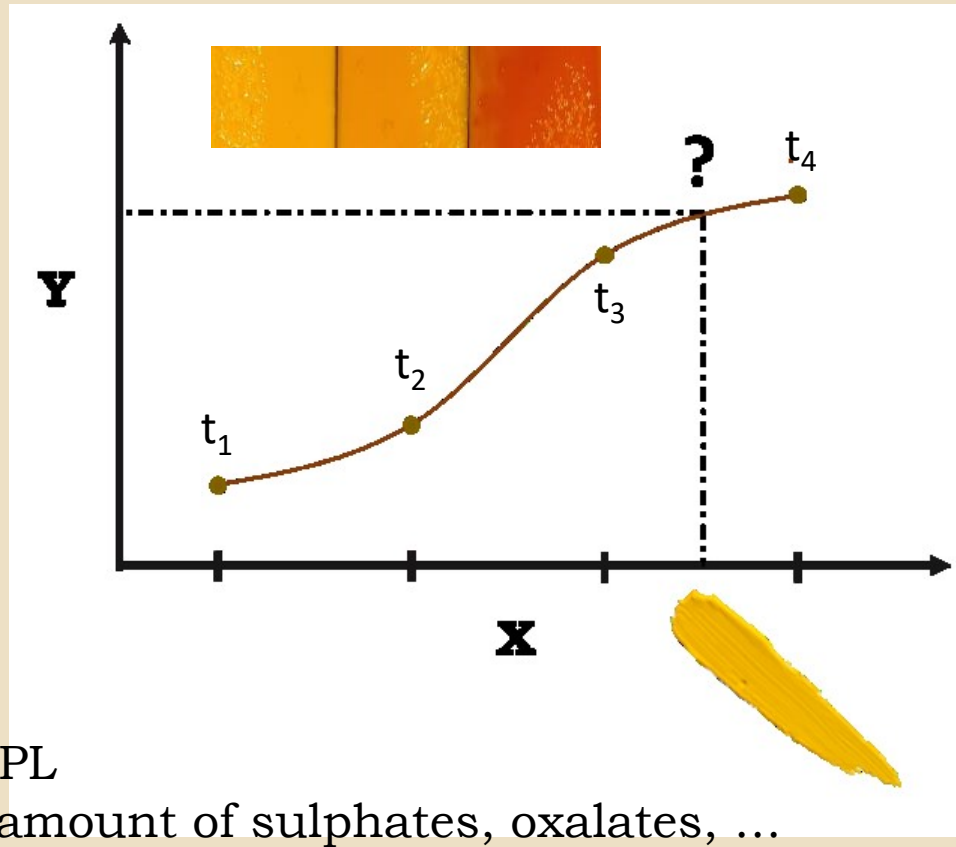
## Known Degradation:

- Chalking, flaking
- Fading
- Darkening



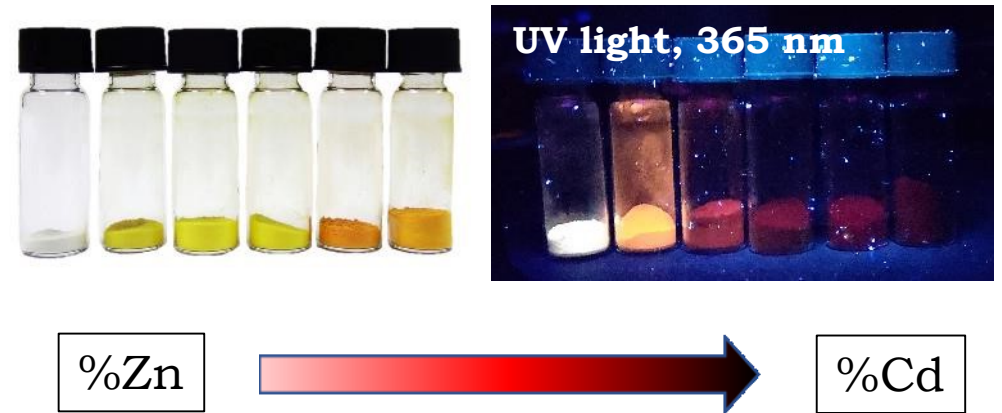
1. 1. Van Gogh, Flowers in a blue vase. Van Der Snickt, G. et al., Anal. Chem. 84, 10221–10228 (2012)

# ASSESS THE STATE OF CONSERVATION OF PAINT WITH MINIMAL ANALYSIS AND MAX INFO



## MODELLING

- Photoluminescence properties



❖ SYNTHESIS

❖ AGEING

❖ CHARACTERIZATION

# 1. SYNTHESIS



Different properties:

- Structure (Cub/Hex)
- Zn/Cd, S/Se content
- $\text{ZnSO}_4/\text{CdSO}_4$ ,  $\text{ZnO}/\text{CdO}$  content



P/B ratio 1:1  
LINSEED OIL

# 2. AGEING

SOL LAMP



CLIMATE CHAMBER



8 weeks ageing, sampling every week

# 3. CHARACTERIZATION

**DATASET** → Modelling plot