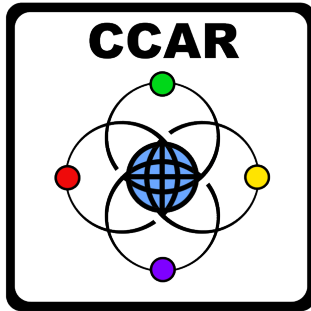


# Who am I ?



**Alessandro Zardini**

Postdoc at CCAR  
Copenhagen Center for Atmospheric Research



University of Copenhagen, Denmark

# My education

Arena



Romeo and Juliet Balcony



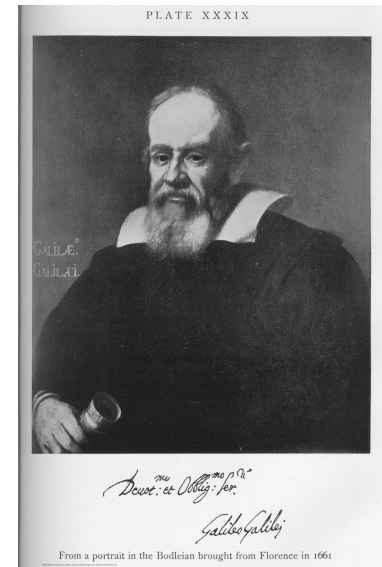
My town: Verona, Italy



**Degree in Physics** with the AOD group  
(Atmosphere and Ocean Dynamics)

“Galileo Galilei” Physics Dept., University  
of Padova, Italy.

Dealing with  
Meteorological Dynamics and Climatology



# My education

**PhD** at the Institute for Atmospheric and Climate Science, at the Swiss Federal Institute of Technology **ETH**, Zurich, Switzerland.

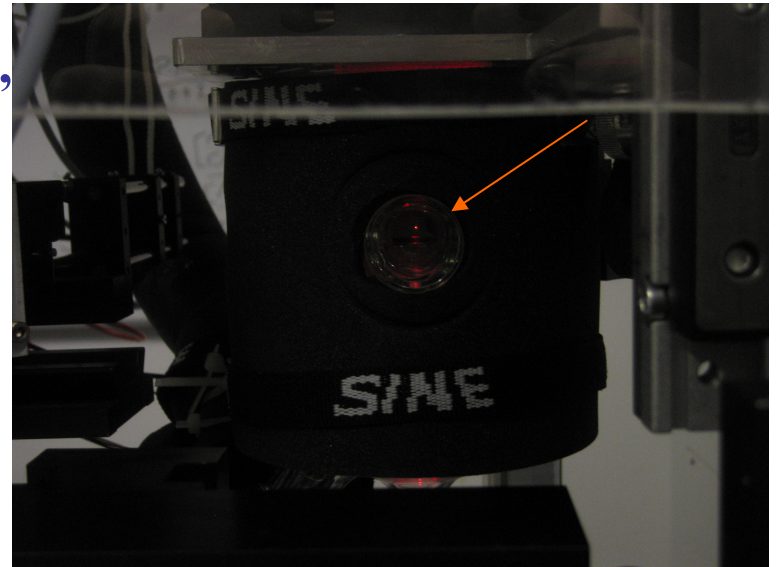
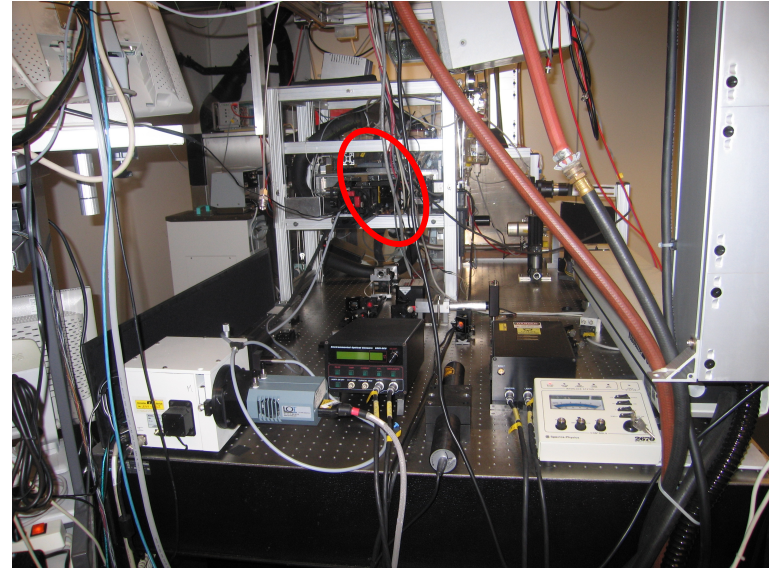
Institute for Atmospheric and Climate Science  
**IACETH**

**Thesis:**

**“The effects of organic compounds on the hygroscopic properties of inorganic aerosols”**

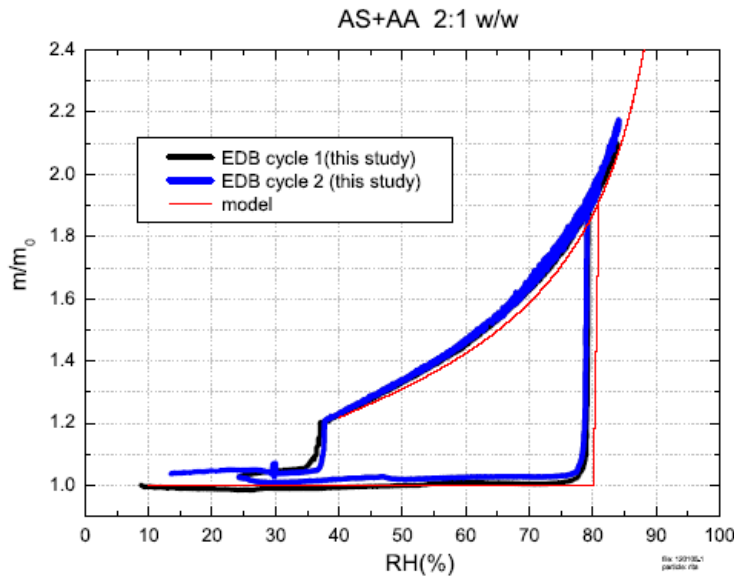
**(water uptake, phase changes, predictability)**

**The setup: electrodynamic balance**

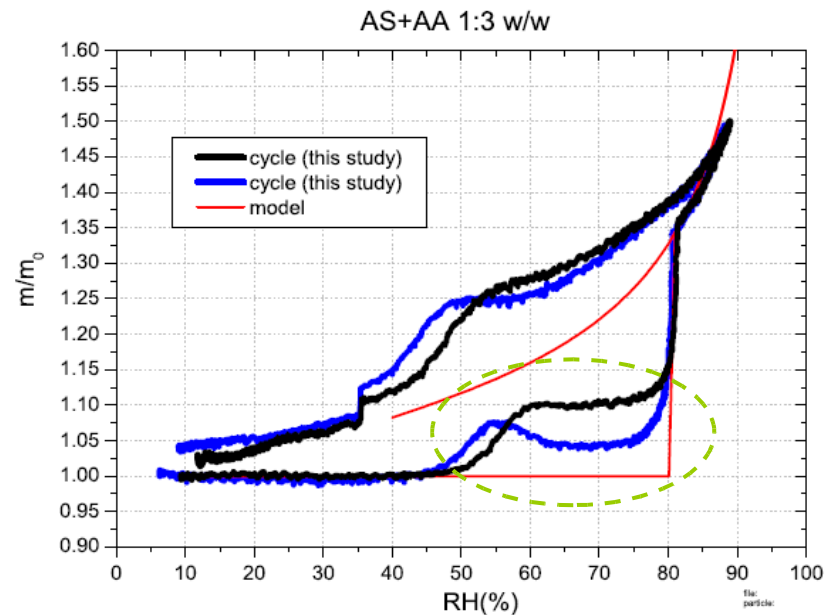


# ...some examples...

## Ammonium Sulfate+Adipic Acid



AS>AA: no particular effects  
(AS takes up water, AA does not)



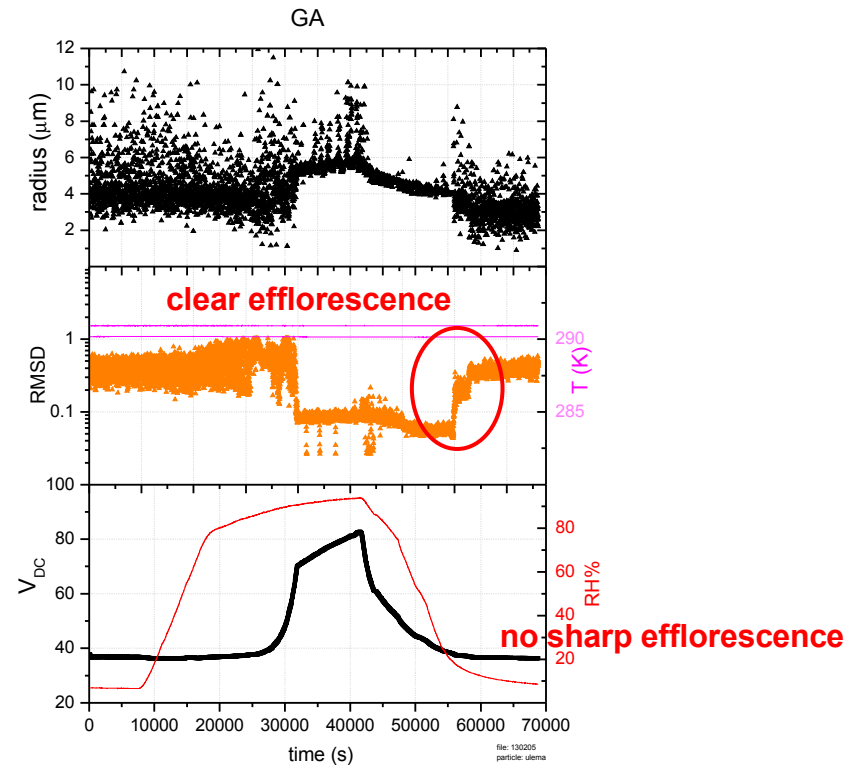
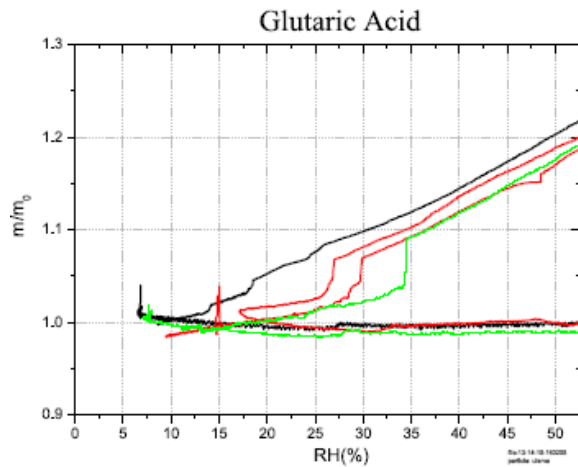
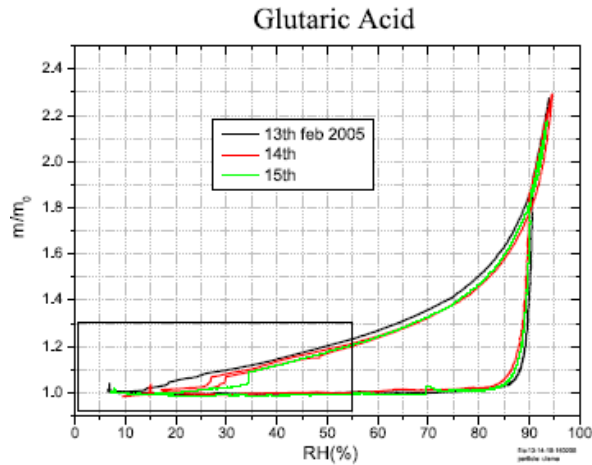
AS<AA: cycles are completely altered

- pre-deliquescence water uptake: 5-15%
- complex dehydration branch
- incomplete Efflorescence

**warning: there is water also when it shouldn't be there**

# ...some examples...

## Glutaric Acid



warning: one single technique is not enough to fully characterize the organics

# ...and now...

## Thermodynamic Properties of Organic Aerosols

### Part of EUCAARI

an European Integrated project  
on Aerosol Cloud Climate Interactions

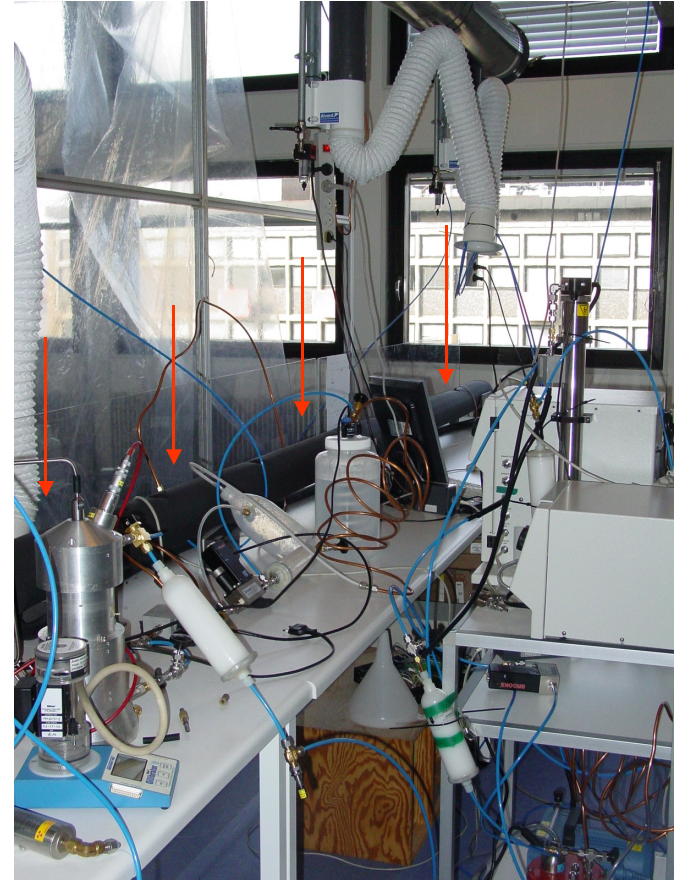
Main focus: laboratory measurements of  
evaporation rates of aerosol particles  
→ **vapor pressure**

...and **CCN** activity...

...and complementary **smog chamber**  
measurements

Special attention to **Keto-Acids**  
and to **mixed inorganic/organic particles**

...by using a modified **H-TDMA**



# Scientific interests and outlooks

thermodynamic properties of aerosol particles:  
water uptake, phase changes, predictability with simple approaches (ZSR)

in particular now: vapor pressure of aerosol components and effects of the inorganic component on the volatility of the organics  
(crucial for the gas/particle partitioning)

...implement this investigation in models

...and from this workshop it would be helpful to have a feedback on the actual needs concerning thermodynamic properties,  
and to know better how modelers implement the organic/inorganic interactions in global models...