

Quality assessment of wine with fluorescence spectroscopy combined with chemometrics

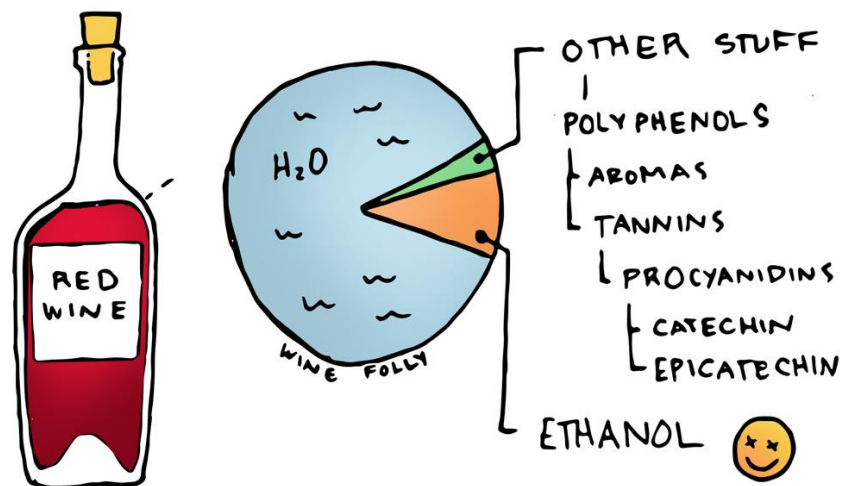
Helene Fog Froriep Halberg
Industrial PhD

FOSS

UNIVERSITY OF COPENHAGEN



Wine quality



Phenolic compounds
- A small fraction with a great influence

Flavanols



Bitterness

Tannins

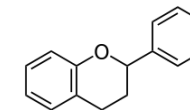


Astringency

Anthocyanins



Color



LOOK



TASTE

COMMON PRACTICE

Today

Wine experts/winemakers:
Sensory evaluations

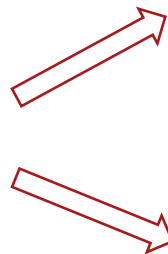
Wine quality rating



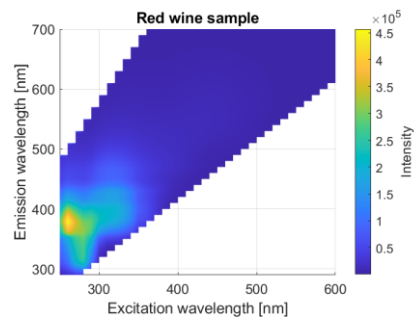
Winery (production)



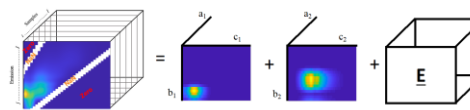
Bottled wine



Wine analysis:
Fluorescence spectroscopy



Chemometrics:
Predict wine quality parameters



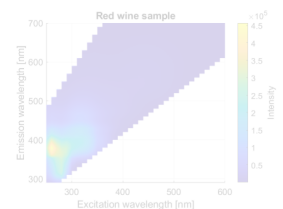
Tomorrow

Winery (production)

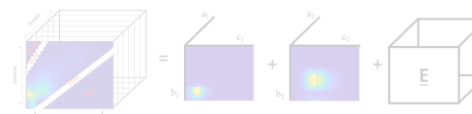


Bottled wine

Wine analysis:
Fluorescence spectroscopy

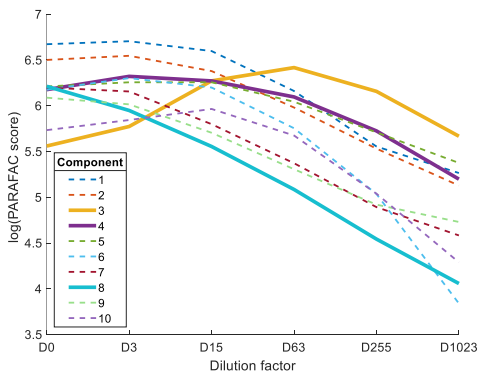


Chemometrics:
Predict wine quality parameters



Tomorrow

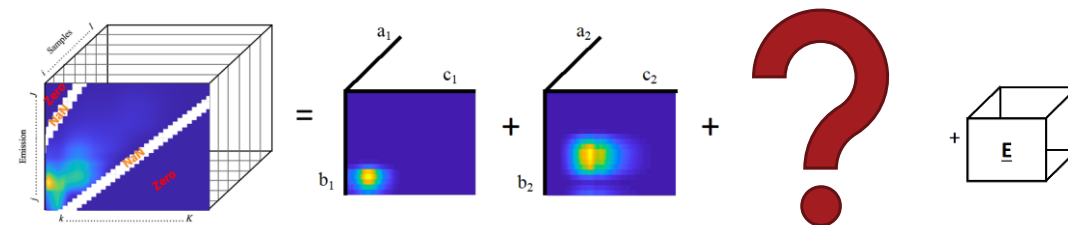
How to measure?



Not one dilution fits all components

How to analyze?

PARAFAC

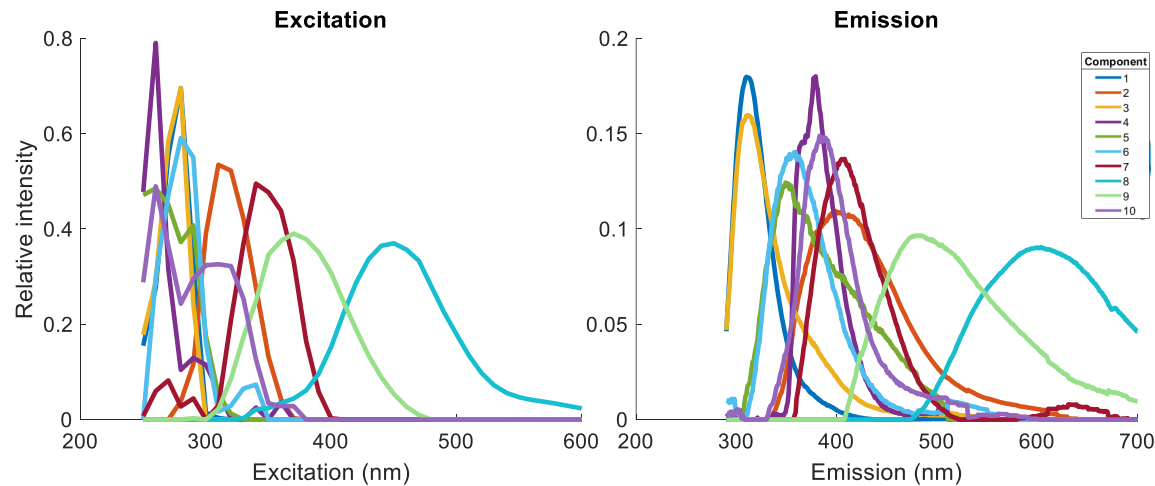
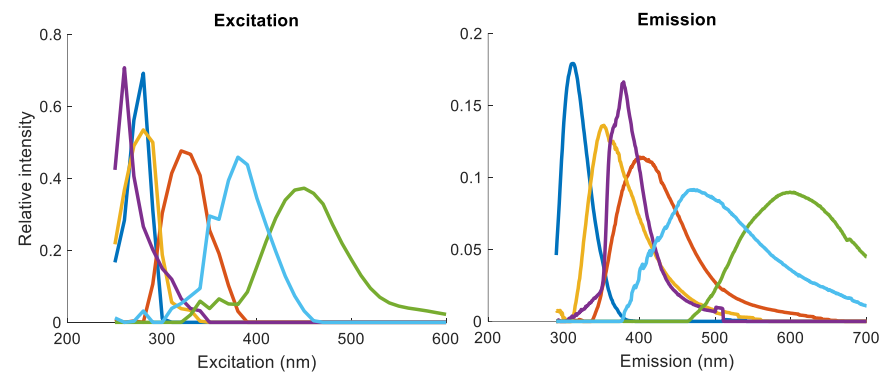


Choosing the correct number of PARAFAC components

Core consistency → 6 components

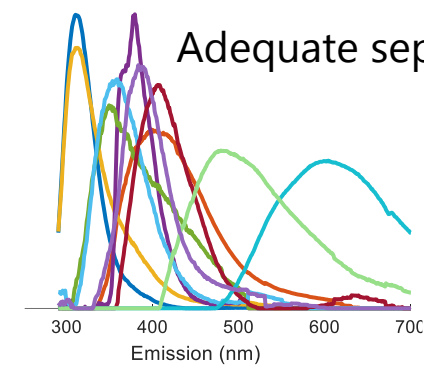
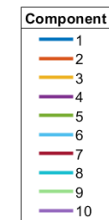
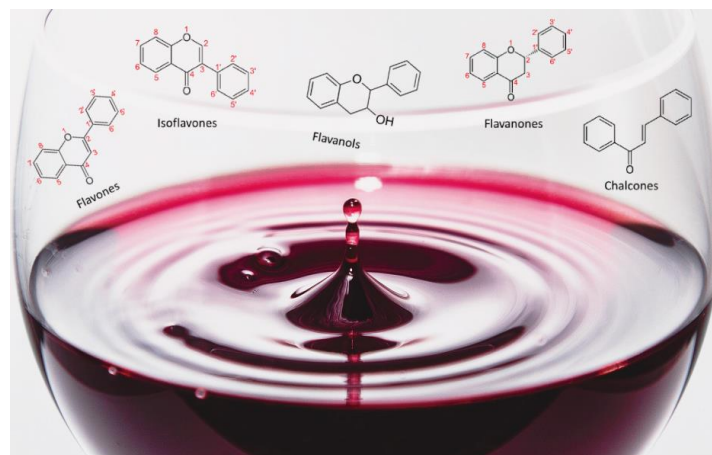
Split half → Limited by # samples

Excitation and emission loadings → 10 components



What's next?

→ Understand the system



Prediction model



Acknowledgements



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Lets make wine great,
with chemometrics!

