

# Analyzing data from imaging experiments

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3D and 4D imaging experiments produce large amounts of data



Gigabytes...  
... or even  
terabytes of data



Purpose of the experiment?

- 3D visualization
- Sample characterization
- Determine process parameters
- etc

Which information do you expect from the data?

### Quantitative

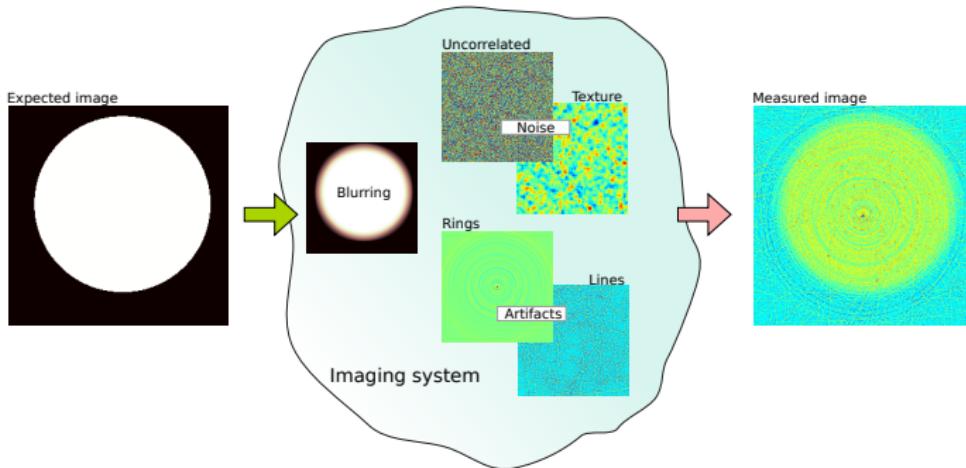
- Material composition
- Material transport

### Structure

- Identify items
- Volume
- Shape

This will affect the choice of processing methods ...

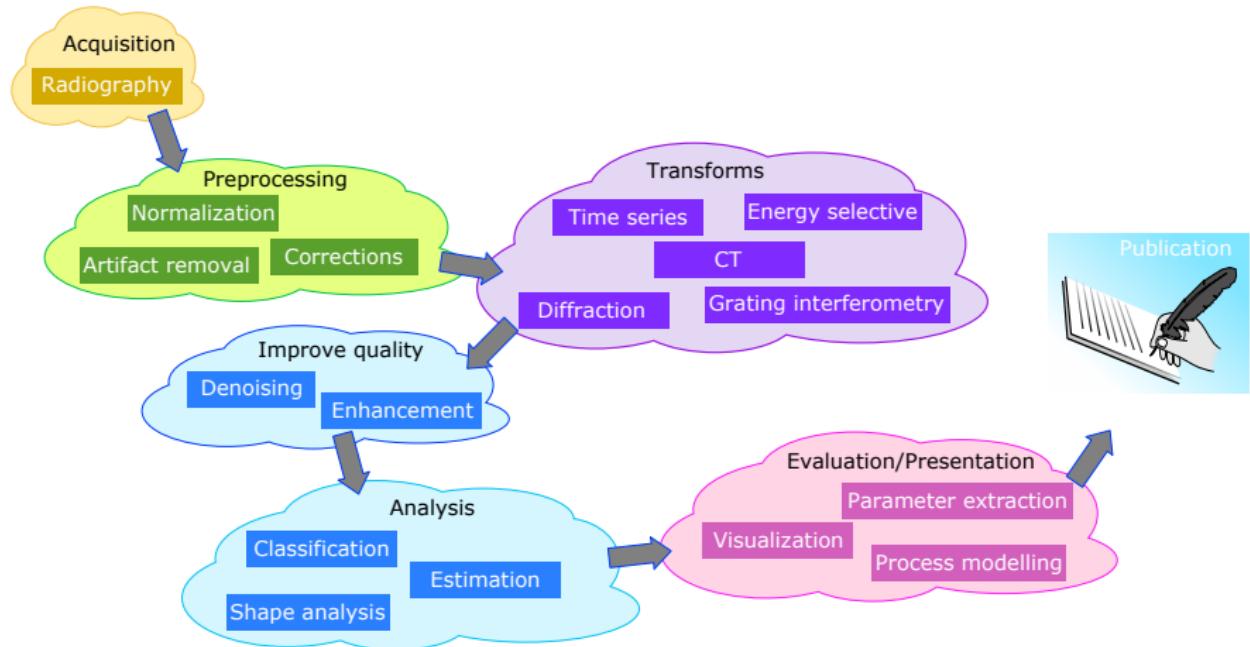
... and may even affect the choice of experiment strategy.



## Factors affecting the analysis

- Resolution
- Small relevant features
- Sample movement
- Noise
- Inhomogeneous contrast
- Artefacts

# A typical processing chain



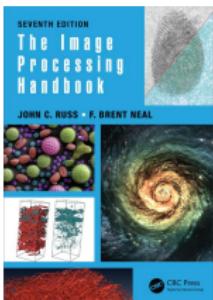
**Nov. 26** Processing: Images, Noise, Transformations, and Filters

**Dec. 3** Processing: Segmentation, Morphological image processing

**Dec. 10** Analysis: Pixels to statistics – Analysis strategies

**Dec. 17** Quantification: From statistics to quantitative bioimaging

Main literature:



John C. Russ  
The Image Processing Handbook  
CRC Press  
ISBN 9781498740289  
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