

# Cologne Evolution Colloquium

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## **Chromosomal instability and copy-number evolution in cancer – from reconstruction to prediction**

Genetic intra-tumour heterogeneity (ITH) is the main driver of resistance development in the clinic and the greatest impediment to targeted cancer therapies. One key aspect of ITH is chromosomal instability (CIN), which enables tumours to generate and tolerate extensive somatic copy-number alterations and genomic rearrangements. Besides its immediate clinical relevance, copy-number variability also forms a rich source of genetic variation that can be exploited for reconstructing tumour evolution in the patient in retrospective studies.

I will report on recent developments in the field of CIN and cancer evolution. I will detail principles that enable us to reconstruct the evolutionary history of cancer in the patient from copy-number data and detect convergent structural evolution. I will highlight potential applications of CIN in predicting patient outcome and in detecting early resistance-providing mutations or cancer driver events and discuss how evolutionary predictions might guide patient stratification and treatment.

Wednesday, March 9, 2022, 17:00  
Institute for Biological Physics/CECAD  
Online via Zoom

Hosted by Andreas Beyer