



Berlin
Mathematical
School

BMS Days 2018

Tuesday 20 February 2018

BMS Loft, Urania, An der Urania 17, 10787 Berlin

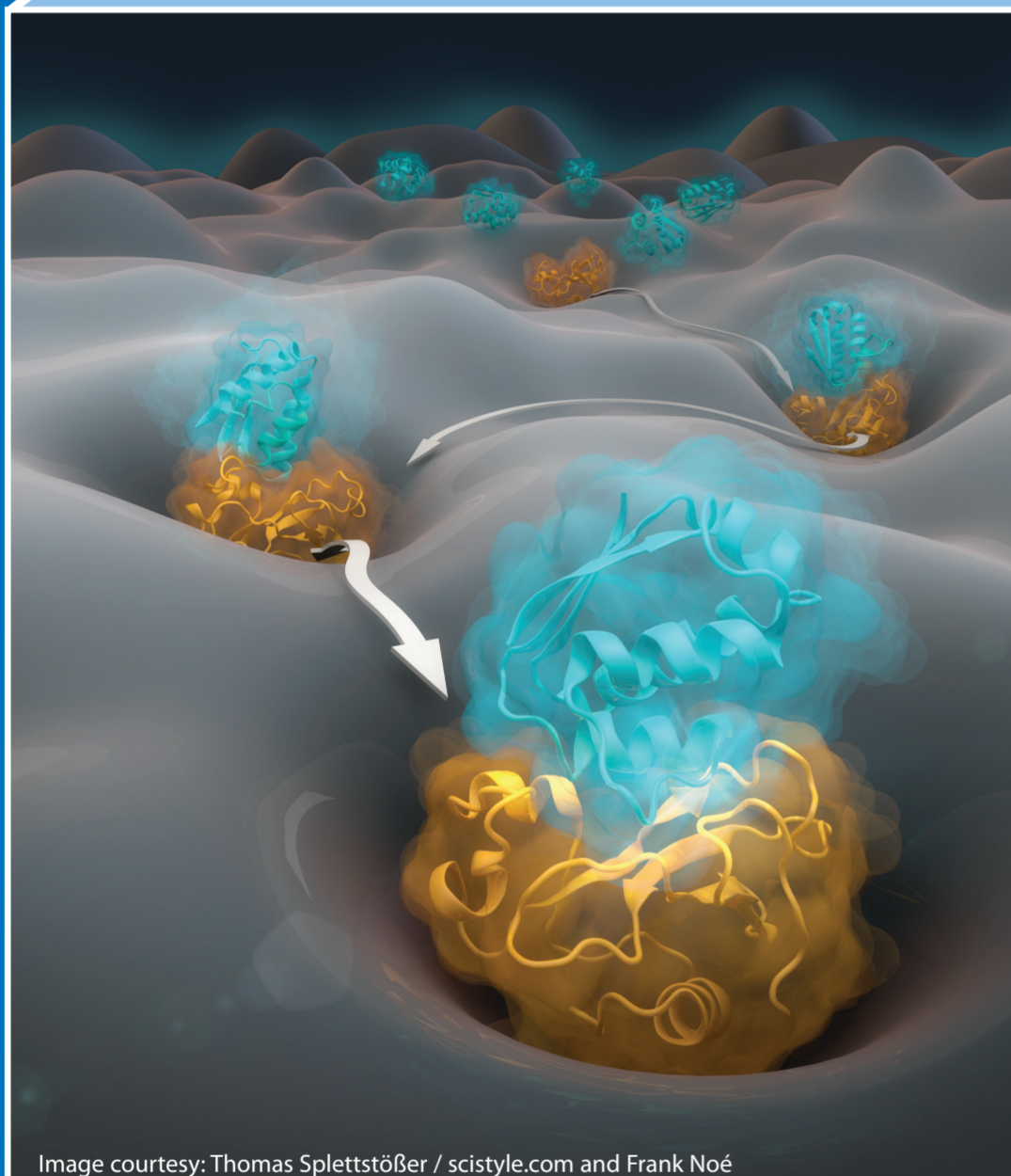
11:00 Frank Noé (FU Berlin)

15:30 Bruno Klingler (HU Berlin)

Frank Noé: Finding tiny black swans: Mathematics for the very small and the very rare

Structure and dynamics of molecules are what constitute life and matter. However, (i) molecules are very small, but most processes are very multiscale, (ii) good simulation models are expensive, (iii) relevant structure changes are very rare. The resulting direct numerical simulations are completely intractable, but real progress can be made by combining key mathematical ideas with machine learning and high-performance computing.

Frank Noé is a professor for mathematics and computer science at the FU Berlin. His research interests include the development of novel mathematical and machine learning methods for biophysics and computational chemistry.



Bruno Klingler: What is... the Hodge conjecture?

Algebraic topology (the study of shapes up to deformation) and algebraic geometry (the study of solutions to polynomial equations) have been deeply intertwined since the end of the 19th century. The purpose of this talk will be to illustrate this interaction through an elementary presentation of the Hodge conjecture, an innocent-looking problem proposed by W. Hodge in 1950.

Bruno Klingler is the Einstein professor for algebra at the HU Berlin. His main research interest lies in the relationship of the topology of varieties and their algebraic and arithmetic structures.

