

MTR Presentation

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Background

Current Research

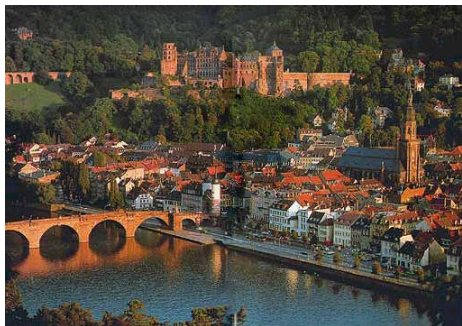
**Protein Residue Contact Inference by Evolutionary
Information
Protein-Protein Interaction Networks**

Activities and Training

**Training in Turin
Training and Activities elsewhere**

Networking and Future

Background



- ▶ **Country of origin: Germany**
- ▶ **Diploma from University of Heidelberg**
- ▶ **Main Focus: Biophysics**
- ▶ **Now: Riccardo Zecchina's group, Optimization and Inference, Turin**

Current Research: Protein Contact Inference

- ▶ **Parts of proteins that are in contact evolve together**

- ▶ **Sequence data → predicted residue contacts**

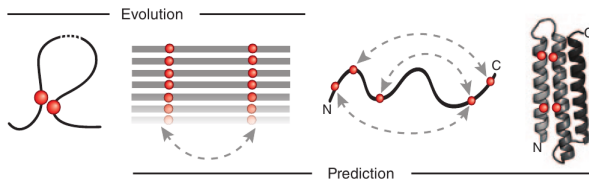


Figure: Marks et al. Protein structure prediction from sequence variation. *Nature biotechnology* 30, (2012).

- ▶ **Direct application in protein folding**

First Secondment: Stockholm

- ▶ **With Erik Aurell**
- ▶ **Extension of an existing method of protein contact inference**
- ▶ **Collaboration between groups in Turin, Stockholm and Helsinki**



Protein-Protein Interaction Networks

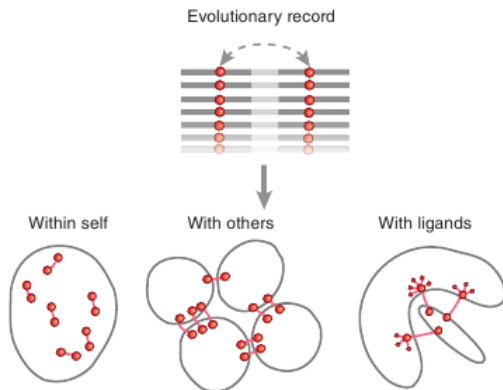


Figure: Marks et al. Protein structure prediction from sequence variation. *Nature biotechnology* 30, (2012).

- ▶ **Running collaboration between Turin, Paris (Martin Weigt) and San Diego (Experimentalists, Scripps Research Institute)**

Second Secondment: Paris (in planning)

- ▶ **On Protein-Protein Interaction Networks**



Training in Turin

As part of PhD:

- ▶ **Applied Probability and Stochastic Processes, R. Zecchina**
- ▶ **Introduction to Molecular Biology, R. Zecchina/Carlo Baldassi/Andrea Pagnani**
- ▶ **Variational Methods in Statistical Physics and Inference Problems, M. Pretti**
- ▶ **Optimization under uncertainty, P. Brandimarte**



Training and Activities elsewhere

Except Netadis events:

- ▶ **Joint CRM-Imperial College School and Workshop in Complex Systems, Barcelona**
- ▶ **Conference on Statistical Mechanics of Biological Cooperativity, Stockholm/Mariehamn**
- ▶ **Poster at KTH Symposium on Big Data for the Life Sciences**
- ▶ **Group Seminar at A. Elofsson's Lab, Stockholm**

Networking and Future

Networking

- ▶ **Built a large number of contacts**
- ▶ **Wealth of international experiences**
- ▶ **Experience in collaboration**

Future

- ▶ **Finish PhD**
- ▶ **Learn and produce as much as possible**
- ▶ **Take advantage of network's possibilities**

The End

Thank you for your attention!