

Workshop on Microscale Thermophoresis

SFB1032-Mini-Lab-Class-Series Part II:

Prof. Dieter Braun in collaboration with nanotemper

When: July 8th - 9th, 2014

Where: July 8th: CeNS-Seminarraum (Schellingstr. 4, 80799 Munich, Dep. of Physics)
July 9th: Seminar Room N110 (Altbau Physik, first floor LMU Main building, entrance via Schellingstr. 4 or Amalienstr. 54)

Contact: Gabriela Milia (SFB1032)

David Witte, NanoTemper Technologies GmbH, Munich

The Technology: The term Microscale Thermophoresis refers to the directed movement of molecules in optically generated microscopic temperature gradients. This thermophoretic movement is determined by the entropy of the hydration shell around the molecules. Almost all interactions between molecules and virtually any biochemical process related to a change in size, stability and conformation of molecules alters this hydration shell and can be quantified. Such changes allow quantification of binding affinities of proteins, nucleic acids and small molecules as well in standard buffers as well in biofluids (blood, cell lysate).

Agenda 08.07.2014:

10.00 – 11.00 **Dieter Braun: Welcome address**

David Witte: Introduction to Microscale Thermophoresis

Outline: Examples for interaction measurements ranging from protein-ribosome, protein-protein, small molecule-receptor binding studies to experiments where the interactions between a receptor incorporated in a vesicle and soluble proteins are analyzed. MST-Analysis is buffer independent, therefore analysis in blood serum and cell lysates is possible as well.

11.00 – 12.00 **Alexey Kedrov: TBA**

Outline: Biophysical Analysis on Membrane Protein Targeting and Assembly

12.00 – 13.00 **Lunch**

13.00 – 18.00 **MST measurements**

Monolith NT.115 (maybe Monolith NT.115^{Pico} & Monolith NT.LabelFree) are available for user measurements. Consumables will be provided by Nanotemper

Agenda 09.07.2014:

- 9.00 – 10.00 **David Witte: Assay Development & Optimization Strategies**
Outline: How to setup a MST experiment and how to optimize your assay to achieve the highest data quality possible.
- 10.00 – 12.00 **MST Measurements**
- 12.00 – 13.00 **Lunch**
- 13.00 – 15.00 **MST Measurements**
- 15.00 **Wrap-up Session**

Please Note: To demonstrate the performance of Microscale Thermophoresis, we would like to invite you to analyze your samples on the Monolith NT.115 and the Monolith NT.LabelFree instruments. We also offer the possibility to label any protein within 30 minutes during our workshop day. For more information please contact david.witte@nanotemper.de