

Institute Lecture

Hydrophobic-Hydrophilic Phenomena in protein folding

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22nd January 2018, Time: 6:15 PM, Venue: LH-16



Abstract

An analysis of all the solvent induced contributions to the thermodynamic driving force for protein folding and protein-protein association reveals that, contrary to the commonly accepted paradigm, Hydrophilic interactions might be more important than hydrophobic interactions.

For over fifty years the hydrophobic effects were believed to be the dominating factors in biochemical processes. Twenty years ago, after critically examining the data on the various contributions to the driving forces for protein folding, and protein-protein association, I reached the conclusion that the Hydrophilic interactions, rather than hydrophobic interactions are the more important in biochemical processes. Examples on the role of Hydrophilic interactions on solubility of proteins, protein folding, protein-protein association and molecular recognition will be presented.

References:

1. Arie Ben-Naim, Molecular Theory of Solutions, Oxford University Press (2006)
2. Arie Ben-Naim, Molecular theory of water and aqueous solutions, Part I and II. World Scientific (2009, 2011)

About the speaker

Professor Arie Y. Ben-Naim is currently Professor Emeritus at The Hebrew University of Jerusalem. He is well known for his major contributions to the theoretical and experimental aspects of general theory of liquids and solutions. His noted publications and books contributed to the better understanding of theory of structure of water, aqueous solutions, and hydrophobic-hydrophilic interactions. In the recent years, he has been also working on the information theory based description of thermodynamics and statistical mechanics, theoretical problems in biochemistry and biophysics, theoretical biology and theory of evolution. He is the author of 25 books and more than 200 papers.

Tea at 6.00 PM

All interested are welcome.

S. Ganesh
Dean of Research and Development, IIT Kanpur