Stochastic collisions between micelle embedded membrane proteins and gas molecules in vacuum

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Membrane proteins play an important role for cell communication from/to the extracellular medium in processes such as signaling transduction, ion channels activity and drug transport. However determination of their atomic structures is usually a very challenging task by high resolution techniques. Recently it has been developed a new method based on mass spectrometry to detect the overall shape and total molecular weight of intact membrane proteins in vacuum. In this talk I will discuss the stochastic modeling of the collisions between gas molecules and micelle embedded membrane proteins which are required to remove the micelle structure and consequently release the intact membrane protein.