The retinal chromophore ion and its heat capacity

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Electrostatic storage devices offer unique tools for studying molecular systems which are relevant for chemistry and biology, helping to solve longstanding questions in these fields. These biologically relevant molecular systems also give rise to the opportunity of studying novel physical phenomena. A prime example is the studies of the retinal chromophore in the electrostatic ion storage ring, Aarhus (ELISA). This talk will contain a brief survey of works in our group elucidating the mechanisms of color tuning used in the proteins which are responsible for vision in animals. Novel measurement of the heat capacity of the retinal chromophore ion will then be discussed in detail. We hope this technique will open a new field of research in molecular calorimetry.

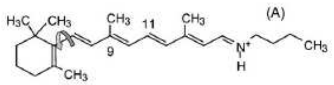

Figure 1. Structure of the protonated Schiff base retinal (PSBR) ion.

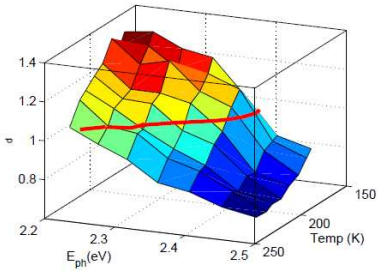

Figure 2. Power law coefficient for the statistical fragmentation as a function of both excitation energy and initial temperature.

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