

269f Molecularly Fine Tuning the Self-Assembly Micellar Systems through Global

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The self assembling micellar systems can act as a design tool to engineer and understand complex biological molecular systems. Typical features of a self assembling system are multiple steady state and hysteresis. These systems exhibit highly non-linear characteristics and require a model structures which can represent all the features of their dynamic behavior. We describe an approach to reliably model and analyze the formation of self assembly systems through mapping the complex dynamic behavior on global bifurcation diagrams. These bifurcation diagrams are also used to fine tune the over all formation process of self assembling systems and impart certain desirable properties to micelle. Our analysis predicts the multiple steady states and hysteresis at certain values of system variables and model parameter combinations. The shape of hysteresis loop and extent of multiplicities in parameter space leads to a specific design of self-assembling systems. The parameter space is also analyzed for the occurrence of limit cycle solutions and periodic behavior.