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A Theoretical Study of some Rheological Properties of the Aggregation of the Molecules Deoxy- Hemoglobin S FRANCIS MENSAH, University of the District of Columbia, JULIUS GRANT, ARTHUR THORPE, Howard University — Sickle cell disease is a serious public health problem that affects many people worldwide. In this paper, the Langevin equation is used for hemoglobin's aggregation in sickle cell anemia. Several parameters are explored such as the time-dependent deformation of the aggregates whose plot gives a sigmoid, the time-dependent expressions obtained for the coefficient of viscosity and the elastic modulus which characterize the aggregation of the sickle hemoglobin. Other properties such as the viscoelastic and the elasto-thixotropic properties of the sickle hemoglobin polymer are also described. An attempt is made to approach the polymerization process in terms of a dynamical system.

Francis Mensah
University of the District of Columbia

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