Combined Rheology and X-Ray Scattering Study of Fibrin Networks and Blood Cells Embedded in Fibrin Networks

T. Pföhl*, B. Struth

*Basel University, Switzerland
DESY, Hasylab, Hamburg, Germany

The goal of the measurements is the study of structural changes of fibrin networks with applied stress within a rheometer by means of X-ray scattering. The protein fibrin plays a principle role in blood clotting and forms robust three-dimensional networks, which show a remarkable elasticity. This demands an elaborated setup, including a mirror to deflect the incoming x-ray beam leading to an important part of the beam-path passing through air. Therefore air scattering as well as scattering from kapton windows of the flight-tubes between sample and detector and the rheometer holder have a high impact on the quality of our measurements. Due to the high background scattering of the used rheometer setup, we are so far unable to observe the normally weak scattering signals from the biomaterial networks. Before a next experimental run, the setup will be improved in order to increase the signal to noise ratio. Furthermore, additional prior rheometer experiments will be performed to find the perfect experimental conditions for this complex study.