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I was very fortunate to get the opportunity to spend a period of around a month in Prof. Hiroshi Watanabe's group as a visiting researcher on the basis of MOU between the University of Leeds and ICR. During this time period I carried out research experiments in the area of *rheo-dielectrics of entangled polyisoprene*.

Both rheology and dielectric spectroscopy are independent techniques to study the dynamics of polymer chains in a melt or solution. However, the chain conformation and motion are differently averaged in these two methods. Rheo-dielectrics refers to combination of these two independent methods which owing to the difference between them can be used to observe detailed features of polymer dynamics. We studied the effect of shear on the dynamics of various solutions of polyisoprene in polybutadiene using this method.

Dielectric spectroscopy is very sensitive to the presence of any ionic impurity in the sample. As the synthesis process itself introduces a lot of ions in the sample it is of utmost importance to reduce these impurities in the sample before carrying out experiments. I had faced problems with a high level of impurity in my samples when I did experiments in Leeds. I learned the cleaning procedure followed in the group in detail and was able to reduce the level of ions in my samples to a large extent. Further I learned how to operate and conduct experiments on a rheo-dielectric set up and what precautions should be exercised in order to improve the accuracy of the results. I carried out rheo-dielectric experiments for various solutions of polyisoprene using a variety of geometries and experimental conditions. I collected data for response under application of large amplitude oscillatory shear and steady shear of different magnitudes to the sample. I also learned how to analyze the dielectric and visco-elastic data in such experiments. I think that the training received here would greatly help me when I carry out similar experiments back at Leeds.

I am very grateful to Prof. Watanabe for providing me with this opportunity and for his time and guidance. This period has been an immense learning experience for me. I also want to thank Dr. Yumi Matsumiya for helping me out at various points. Further, I want to thank Yukie Kajikawa, Yohji Kawasaki and others in the group for their help. Last but not the least, I want to thank the Institute for Chemical Research for funding my stay here.



Operating rheo-dielectric set-up in the laboratory for studying the dynamics of entangled polyisoprene