

The 3rd German Ferrofluid Workshop has been held in Benediktbeuern end of October 2000. It has been part of a series of workshops following the previous events in Bremen (1997) and Magdeburg (1999). The aim of these conferences is to bring together the German ferrofluid community and to strengthen the cooperation among the research groups. This year, for the first time, the Workshop has been combined with the 1st colloquium of the DFG priority program "Colloidal magnetic fluids" (SPP1104). The workshop documented a strong growth of the community of researchers interested in suspensions of magnetic nanoparticles. In total more than 50 papers were presented during the workshop and about 90 participants from more than 40 organizations attended the event

The topics of the papers presented represent well the current direction of ferrofluid research in Germany. In principle the research activities have presently two main focuses – the investigation of magnetoviscous effects in ferrofluids and the development of biomedical applications for suspensions of nanosized magnetic particles. This twofold structure of the research field in Germany is also mirrored in the newly established DFG-priority program "Colloidal Magnetic Fluids" [www.zarm.uni-bremen.de/dfg-priorityprogramme.html] which had it's first colloquium the day preceding the workshop. The scientific sessions covered the whole field of magnetic fluid research – from synthesis and characterization over the bulk properties of the fluids, magnetic field induced flow phenomena and surface instabilities towards applications in technical and medical fields. Two invited speakers, Prof. Elmars Blums from the

University of Latvia and Prof. Roy Chantrell from Durham University, UK gave highly encouraging special lectures. Poster sessions held during the coffee breaks were filled with stimulating discussions which could be continued in the evening after closing of the sessions since most of the participants were lodged in the cloister of Benediktbeuern itself.

In the following we'll mainly focus on the part of the workshop concerning magnetoviscous effects. In this field a mayor approach is dedicated to the clarification of the microscopic reasons of the magnetoviscous effects and to an appropriate theoretical description of magnetoviscosity. From the theoretical point of view two complementary approaches are actually followed. On the one hand the classical approach of a description of the macroscopic properties on the basis of microscopic models for the fluids structure has been extended to numerical simulations giving an impression of the effects of chain formation of magnetic particles and its influence on the rheological properties of the liquid. On the other hand the development of a macroscopic theory for ferrohydrodynamic processes without any a priori assumptions concerning the fluids microstructure made interest-



Figure 1 (above): The cloister of Benediktbeuern – venue of the 3rd German Ferrofluid Workshop.

Figure 2 (bottom): One of the exhibits of the arts exhibition. "No title" by Ilona Kempny, photography and prints.

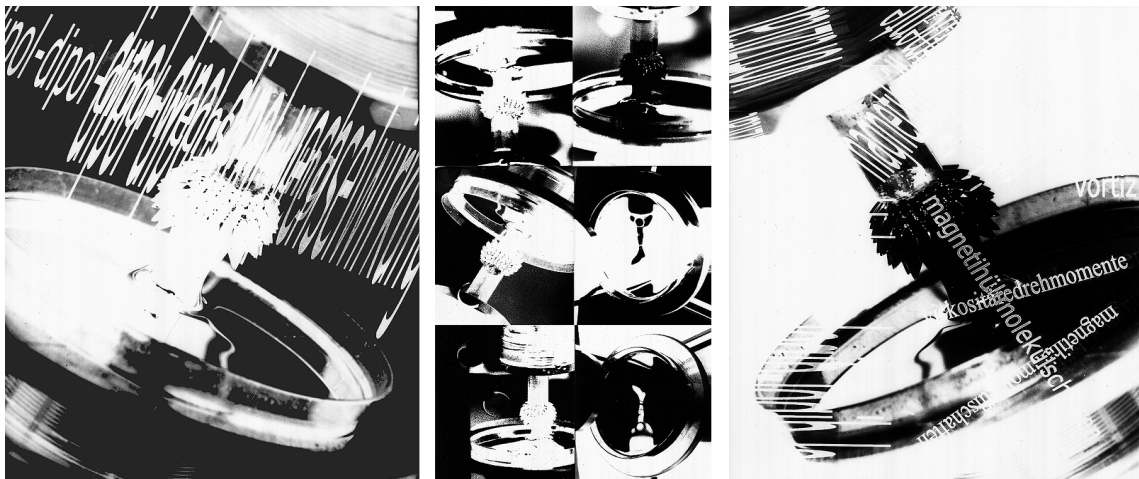


Figure 3: Group foto of the 3rd German Ferrofluid Workshop.



ing progress during the last years. Particular interest is now focused to the production of model fluids with well defined particle diameters as well as to the synthesis of fluids with different chemical composition, having stronger interparticle interaction. It is expected, that during the next years the interaction between chemists producing the fluids, experimentalists from the rheological side characterizing their rheological properties and theoretical physicists describing the magnetic field dependent phenomena in magnetic fluids Rheology will give rise to a deeper understanding of the phenomena. This interaction is particularly supported by the DFG priority program, which also includes engineers defining the requirements for magnetoviscous fluids used in future applications. Details concerning the talks can be found via the links to the Benediktbeuern Workshop on the Ferrofluid Information Server [www.maschinenbau.tu-ilmenau.de/mb/wwwtd/hydromag/ferro/start.html].

Beside the pure scientific work during the four days, some special events were organized. Beside a guided tour through the cloister – being the eldest one in upper Bavaria – and the after dinner talk by Roy Chantrell held after the Workshop dinner, an arts exhibition has been organized in the frame of the poster exhibition

under patronage of the European Academy of Sciences and Arts. For this exhibition a group of arts students from the University of Bremen has been asked to deal with the actual topic of the workshop and to transfer there impression from the scientific work with magnetic fluids to their artistic work. The idea behind was the initiation of a dialogue between artists and scientists started with the artists engagement with the scientific work and results and continued with the interest of the scientists in the artists view of the scientific topics.

After finishing this successful workshop already the next events in ferrofluid research in Germany appear in focus. First of all the International conference on Magnetic fluids (ICMF9) will be held from 23rd till 27th of July 2001 in Bremen. The next German Ferrofluid Workshop will be organized in Berlin in 2002. Details on ICMF9 as well as on the upcoming German Ferrofluid Workshop can be found on the Information server.

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