

The Global COE Program
“The Next Generation of Physics, Spun from Universality and Emergence”
Bilateral International Exchange Program (BIEP, invite) report

Send report to: Your responsible Professor in Kyoto University

gcoe-biep@scphys.kyoto-u.ac.jp , gcoe-office@scphys.kyoto-u.ac.jp

(Year/Month/Day) 2009/12/22

Invited Student

| | |
|------------------------------------|------------------------------------------------------------------------------------------|
| Name | Sarah Dölle |
| University and Country | Universität Halle, Germany |
| Grade | Graduate chemist (Diplomchemiker) |
| Phone and FAX | Germany: +493459782781 Japan: +818053497365 |
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| Name and Position of Ph.D. advisor | Dr. Jan Lagerwall |
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Responsible Researcher in Kyoto University

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|-------------------|--------------------------------------------------------------------------------|
| Name | Jun Yamamoto |
| Group and Faculty | Softmatter Physics, Physics I (Condensed matter) |
| Position | Professor |
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Research Project

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|----------|------------------------------------------------------------------------------------------------------------------|
| Title | dispersions of carbon nanotubes in isotropic and nematic phases studied by dynamic light scattering and rheology |
| Duration | 10 Weeks |

Please summarize your activities and results during your stay in Kyoto University. Also please describe how your stay has been beneficial to the graduate students in the host institute. You can add a sheet, if you need more space.

You can also write any comments and requests to the GCOE program.

During my stay in Kyoto University I experienced many interesting and impressive things on and off campus. On my arrival I was cordially received from Prof. Yamamoto and his research group. He took the time to show me around the laboratory the first day. After a short acclimatization regarding the time difference and the new environment, I started to prepare the samples for my measurements. In the beginning I had some problems with the preparations due to the fact that the equipment is different from my laboratory in Germany. But after two trials the prepared samples were useable. First measurements were dynamic light scattering experiments

I was introduced to this measurement system by a student of the group. He is still the contact partner, if I have problems with the system. Analyzing this results is still a challenging task for me. But I get assistance whenever I need it. Capturing the size of the assembled structures by dynamic light scattering was my main focus for the time of stay.

I also tried to measure the birefringence of nematic samples (with and without carbon nanotubes). But since these are lyotropic nematic phases, the alignment couldn't be realized sufficiently. By reason that this was not the main emphasis, I didn't get deeper into this problem.

For the end period in the laboratory I wanted to use a new rheology system, which Prof. Yamamoto modified for special use with liquid crystals. Hence the system has been set up completely just two weeks before I had to leave again, I was not be able to tap the full potential of this promising system. I only did some normal rheology measurements to get some additional information about my samples.

During my time in the laboratory many of the students were trying to improve their English skills. And I have to bring out that I noticed them getting a little better. Not least of the fact that a foreign language is less awe-inspiring, if you are of same age working together. One of the students even bought a book for learning English. Apart from the language we exchanged many experiences about our cultures. Furthermore they took the time to show me round in Kyoto. So we visited some temples and restaurants together. Actually it was a very good time for me receiving these impressions, since I gained not only insight into general cultural inheritances but also into the different way of living.