Registration and practical details

The students will be accommodated in Golf Hotel in rooms of double or triple occupancy (shower, toilet and two beds) from the evening of 23.09 to the morning of 30.09. The registration fee is 980€ per person. For this you get 7 nights of accommodation with breakfast, five lunches, a welcome buffet and a farewell buffet in the evenings of September 23rd and 29th, respectively, lectures, lab sessions and lecture notes (in pdf format).

If you prefer a single room it may be possible at the increased registration fee of 1350€. However, the number of single rooms is limited.

Application for participation should be done on-line at www.summerschool.lcsoftmatter.com and will be registered chronologically as they arrive. Provided that the maximum number of participants has not been reached you will receive a note of acceptance within three days whereupon the registration fee should be transferred to the bank account given on our homepage. The deadline for application is July 20, 2018.

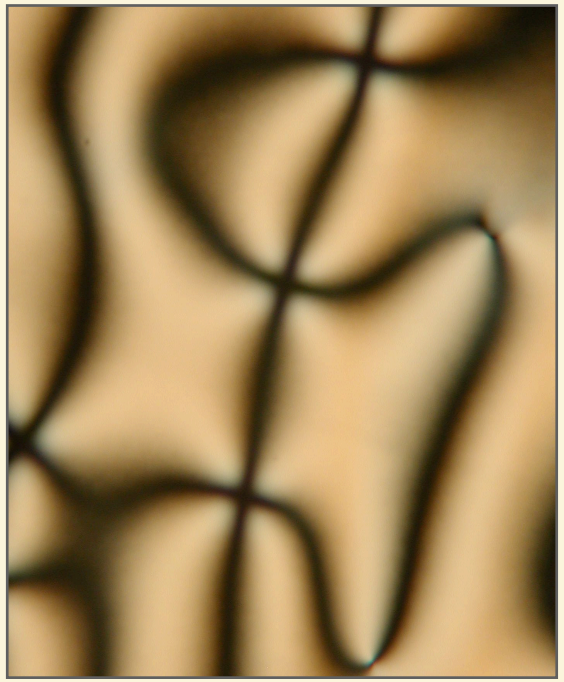
Bandol

Bandol is a charming seaside resort on the south coast of France. It is easily reached from the airports of Nice, Marseille or Toulon and by train. The school participants will be accommodated in a pleasant hotel directly on the beach (see pictures above). The lectures and practical work will take place at LC Lab three minutes from the hotel. The weather in late September is normally very stable and you might spend some of your free time swimming in the sea.

For Travel Directions see our homepage www.summerschool.lcsoftmatter.com

The International Bandol Summer School on Liquid crystals 2018

www.summerschool.lcsoftmatter.com



Sept. 23 - 29, 2018

LC Lab welcomes you to a week-long summer school with lectures and experiments, forming a comprehensive introduction to the science of liquid crystals.

LC Lab Bandol
3 Corniche Bonaparte
83150 Bandol
France

The school is mainly intended for undergraduate and graduate students of physics, chemistry, materials science, engineering or similar directions but also for research staff and technicians new to the field of liquid crystals. The focus will be on the physics and physical properties of liquid crystals (understandable for chemists) and the technical application of the materials, but there will also be discussion on the chemistry of liquid crystals (understandable for physicists).

Our ambition is to provide explanations for essentially all phenomena that you will observe through the polarizing microscope - and quite a bit more. The lecturers are active university researchers with considerable experience of academic teaching on the subject. Because the practical work at the polarizing microscope is an important part of the course the number of participants is restricted to sixteen. At the end of every day there will also be a session for discussion and questions with all lecturers present.

Lecturers:
S.T. Lagerwall, F. Gießelmann, P. Rudquist, D. Kruerke, J. Lagerwall, G. Scalia, D. Blunk, S. Jagiella

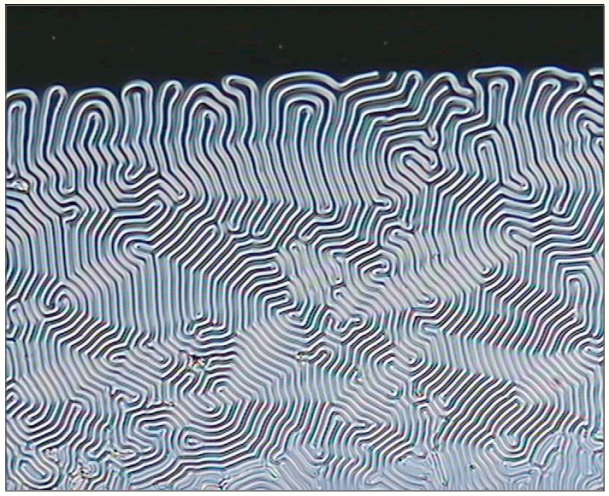
A unique combination of lectures and labs

Course contents

A unique feature of this summer school is the continuous interplay between classroom style teaching and laboratory experiments. In addition to lectures and exercises, the program contains a large component of practical lab work and discussions. As the number of teachers is almost half the number of students, the contact will be close and you will have lots of opportunities to ask questions. There will be a large number of demonstrations using didactic models particularly powerful to explain the complex optics of liquid crystals. Practical work includes polarizing microscopy; texture analysis with demonstrations of the occurring defects, e.g. disclinations, Grandjean steps, focal conics and zigzags in smectics; preparation of lyotropic liquid crystals; as well as observation of electrooptic effects in nematics, PDLCs, cholesterics and chiral smectic phases.

Topics to be covered:

•Liquid crystal phases and classes
Thermotropics vs. lyotropics, calamitics vs. discotics. Nematic, cholesteric, smectic, lamellar, columnar, blue and TGB phases.



•Physical properties of liquid crystals
Optic, dielectric and elastic properties. Flexo-, ferro- and antiferroelectricity.

•Liquid crystal thermodynamics & statistical physics
Phase transitions and order parameters, orientational distribution functions.

•Chirality in liquid crystals
Optical activity, helical director modulation, spontaneous electric polarization.

•Polarizing optical microscopy on liquid crystals
Texture types and their characteristic defects, phase identification. Conoscopic methods and compensators.

•Other experimental characterization techniques
X-ray diffraction, dielectric spectroscopy, electrooptic techniques. Freestanding smectic films.

•Application of liquid crystals
Liquid crystal displays and the electrooptic effects which they utilize, liquid crystals as self-organizing nanotemplates, liquid crystals in sensing devices.