

Report on the II-nd workshop of ESF PHASE network held in Gif sur Yvette from 5 to 8 June 2001.

Objectives of the workshop:

The second meeting of ESF network PHASE was more “thematically” oriented, comparing with the first meeting. During the first meeting of 2000 the list of subjects of the common interest to the most of participants become apparent. This second meeting focussed on presentations and discussions on these selected subjects, although there was a couple of “nonthematical” presentations. Also, differently from the first meeting, the individual presentations were shortened to 1/2 hour, giving more space for discussions.

The second workshop was successful too, to my opinion. The atmosphere was also very friendly and productive. It seems that a nice community has established after these two meetings. Our community was also slightly refreshed by inviting the people from new group of Barcelona, which seemingly fitted nicely to the community.

Organization of the workshop:

The local organization was carried out by M. Le Berre. The organization from the scientific side was made by K.Staliunas.

Participants of the workshop:

Braunschweig:

- 1 K.Staliunas, PTB Braunschweig; kestutis.staliunas@ptb.de
- 2 V.Taranenko, PTB Braunschweig; Victor.Taranenko@ptb.de

Valencia:

- 3 Isabel Perez Arjona, Valencia isabel.perez-arjona@uv.es

Como:

- 4 S. Minardi, University of Insubria; sminardi@fis.unico.it

Copenhagen-Risoe

- 5 M. Saffman, University of Wisconsin, Madison; msaffman@facstaff.wisc.edu
- 6 M.Bache, Risø National Laboratory (Denmark); morten.bache@risoe.dk

Muenster

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Jena:

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Lille:

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- 13 E.Louvergneaux, University of Lille;

Florence

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- 26 M. Le Berre, University of Paris South in Orsay; Martine.Le-Berre@ppm.u-psud.fr
27 E.Resayre, University of Paris South in Orsay,
Milano
- 28 S.Longhi, University Politecnico di Milano; longhi@morgana.elet.polimi.it
Strathclyde:
- 29 Francesco Papoff University of Strathclyde, papoff@phys.strath.ac.uk

Thematic Topics:

noise: Noise and spatial patterns: stochastic drift of patterns, spatial-temporal spectra, scaling laws in patterns with defects;

1. Description of a bifurcation roll-labyrinth, Le Berre (Paris)
2. Effects of noise, non local interaction and spatial non uniformities on pattern formation in a nematic liquid cristal with optical feedback, M.Taki (Lille)
3. Growth Laws and Circular Domain Walls in Nonlinear Optics, D.Gomila (Palma)
4. Convective instabilities in Liquid Crystal Light Valves, F.Papoff (Strathclyde)

Ising-Bloch: Ising-Bloch domain walls, and Ising-Bloch transitions in nonlinear optics and in general;

1. Dark soliton-like structures and Ising-Bloch transitions in degenerate optical parametric oscillators, Arjona (Valencia)
2. Oscillation induced motion – a new kind of an Ising-Bloch transition, Michaelis (Jena)
3. Polarization Coupling and Transverse Patterns in Optical Parametric Oscillator, G.Izus (Palma)

patterns: Pattern formation, instabilities and localized structures; New results and applications.

1. Experiments on patterns in VCSELs, Taranenko (Braunschweig)
2. Formation of Localized Structures in a Single-Mirror Feedback Scheme: Connection to Self-induced Lensing, Optical Bistability and Pattern Forming Instabilities, T.Ackeman (Muenster)

3. Tailoring the properties of localized structures and of their bound states, P.Ramazza (Florence)
4. 3D pulse compression in SHG; also new experiments on nonresonators OPO patterns S.Minardi (Como)
5. Spatiotemporal phenomena in atomic laser systems, J.Ojalvo (Barcelona)

experiments: How to observe experimentally spatial phenomena in OPOs-DOPOs resonators. Problems and possible solutions.

1. How to observe experimentally patterns in microcavity OPOs: open problems, K.Staliunas (Braunschweig)
2. Problems and solutions with experiments with the patterns in cavities, M.Saffman (Kopenhagen - Wisconsin)

multiphase: Patterns, localized states, etc. in three-phase and multiphase systems (in nonlinear optics and general)

1. Three-armed spiral waves in optical parametric oscillators, S.Longhi (Milano)
2. Competing hexagons in the frequency divide-by-three optical parametric oscillator S.Longhi (Milano)
3. Multiphase patterns in multi-longitudinal OPOs K.Staliunas (Braunschweig)

quantum: Quantum patterns.

1. Spatial correlations of transverse structures in intra-cavity second harmonic generation, M.Bache (Kopenhagen)
2. Quantum noise of singly resonant SHG, M.Saffman (Kopenhagen - Wisconsin)

Shedule:

The duration of talks: up to 30 min. + up to 15 min. discussions.

	<i>Morning</i>	<i>Afternoon</i>
5-th June (Tuesday)	XXX	(16:15-20:00) noise 1. E. Weisfield (Paris) 2. M. Le Berre (Paris) 3. M.Taki (Lille) 4. D.Gomila (Palma) 5. F.Papoff (Strathclyde)
6-th June (Wednesday)	(9:00-12:00) Ising-Bloch 1. I.Arjona (Valencia) 2. D.Michaelis (Jena) 3. G.Izus (Palma)	(14:00-15:30) experiments 1. K.Staliunas (Braunschweig) 2. M.Saffman (Wisconsin)

7-th June (Thursday)	(9:00-13:00) patterns 1. V.Taranenko (Braunschweig) 2. T.Ackeman (Muenster) 3. J.Ojalvo (Barcelona)	(14:00-19:00) patterns (continuing) 4. M.Tlidi (Brusseles) 5. P.Ramazza (Florence) 6. S.Minardi (Como) quantum 1. M.Bache (Kopenhagen) 2. M.Saffman (Wisconsin)
8-th June (Friday)	(9:00-12:00) multiphase 1. S.Longhi (Milano) 2. Concluding discussions	
