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1993 GORDON RESEARCH CONFERENCES

on

NONLINEAR OPTICS

Grant No. 49620-93-1-0141

Final Progress Report

This grant provided essential financial support for the Gordon Research Conference on Nonlinear Optics which was held August 1-6, 1993, at Brewster Academy, Wolfeboro, New Hampshire. The objective of this conference was to bring together scientists so they could exchange recent research results and the conference provided a mechanism for the development of close interactions between these scientists.

The conference was attended by 135 conferees. There were participants representing academic, industrial, and government institutions. In addition, there were attendees from Canada, Germany, Israel, France, United Kingdom, Czech Republic, The Netherlands, Japan, Australia, Austria, Spain, and Greece.

The quality of all of the lectures was exceptionally high and considerable discussion followed each lecture. Many of the conferees expressed very favorable comments about the intellectual stimulation provided by this conference.

1993 Gordon Research Conference on Nonlinear Optics and Lasers

August 1st through 6th, 1993, Brewster Academy, Wolfeboro, NH
Dana Z. Anderson (Chair), Yaron Silberberg (Vice-Chair)

Program Schedule

Sunday

Bus arrives 6:00 pm
Participant registration

7:00 pm	**DINNER**	
8:30 pm	Chairman's reception	

Monday

7:45 - 8:45	**BREAKFAST**	
8:45 - 9:00	**Welcome to Brewster Academy** ***by Tim Radley***	

Monday Morning: ***Nonlinear optical effects and materials***

Discussion Leader: D. Hanna

9:00 - 9:45	Martin Fejer	*Efficient frequency conversion in micro-structured media*
9:50 - 10:35	George Stegeman	*AlGaAs below half-bandgap: the silicon of nonlinear optical materials*
10:40 - 11:10	**COFFEE BREAK**	
11:10 - 11:55	Turan Erdogan	*Ultrastrong UV photosensitivity in germanosilicate glass loaded with hydrogen*
12:30	**LUNCH**	
6:00 pm	**DINNER**	

Monday Evening: ***New laser technologies***

Discussion Leader: J. Feinberg

7:30 - 8:15	Richard Slusher	*Semiconductor microdisk lasers*
8:20 - 9:05	David Hanna	*Up-conversion lasers*

Tuesday

7:45 - 8:45	**BREAKFAST**	
8:45 - 9:00	**GROUP PHOTOGRAPH**	

Tuesday Morning: ***Soliton interactions***

Discussion Leader: J. Sipe

9:00 - 9:45	Grover Swartzlander Jr.	*Optical vortex solitons in nonlinear refractive media*
9:50 - 10:35	Alejandro Aceves	*Soliton interaction in fiber arrays*

10:40 - 11:10	**COFFEE BREAK**	
11:10 - 11:55	Martyn deSterke	*Gap solitons*
12:30	**LUNCH**	
6:00 pm	**DINNER**	

Tuesday Evening: ***Spatial-temporal dynamics in optical systems***

Discussion Leader: K. Otsuka

7:30 - 8:15	William Firth	*Spatio-temporal dynamics in nonlinear optical systems*
8:20 - 9:05	Jerry V. Moloney	*Turbulence and regular patterns in wide aperture lasers*
9:10 - late	**POSTER SESSION**	

Wednesday

7:45 - 9:00	**BREAKFAST**	

Wednesday Morning: ***Atom trapping and cooling***

Discussion Leader: S. Gilbert

9:00 - 9:45	Carl Wieman	*Optically trapped atoms — a unique and simple medium for nonlinear optics*
9:50 - 10:35	Gilbert Grynberg	*The trapping of atoms in optical crystals: the quantization of motion and generated nonlinear signals*
10:40 - 11:10	**COFFEE BREAK**	
11:10 - 11:55	Peter Zoller	*Spectroscopy of cold atoms*
12:30	**LUNCH**	
6:00 pm	**DINNER**	

Wednesday Evening: ***Field induced interference***

Discussion Leader: A. Kaplan

7:30 - 8:15	Marlan O. Scully	*Field induced atom interference effects*
8:20 - 9:05	Dan Elliot	*Observations of interference between optical Interactions*
9:10 - late	**POSTER SESSION**	

Thursday

7:45 - 9:00	**BREAKFAST**	

Thursday Morning: ***High field effects***

Discussion Leader: D. Bloom

9:00 - 9:45	Paul Corkum	*Atoms and molecules in high fields*
9:50 - 10:35	Phil Bucksbaum	*Terahertz nonlinear excitations of Rydberg states*
10:40 - 11:10	**COFFEE BREAK**	
11:10 - 11:55	Roger Falcone	*Terahertz through xray generation from high intensity laser interactions with gases and solids*
12:30	**LUNCH**	

6:00 pm	**DINNER**	**Lobster and Clam Bake**
7:30 - 8:55	**Business meeting (selection of the 1995 Vice-Chair, etc.†)**	

Thursday Evening: ***Optical physics***

Discussion Leader: Wayne Knox

7:55- - 8:00	**Closing reminders** ***by Tim Radley***	
8:00 - 8:45	Ian Walmsley	*Nonclassical dynamics of molecular vibrational wavepackets*
8:50 - 9:35	Paul Planken	*Terahertz quantum beasts in quantum wells*

Friday

7:30 - 8:30	**BREAKFAST**	

Friday Morning: ***Applications of nonlinear optics***

Discussion Leader: H. Winful

8:30 - 9:15	Alois Renn	*From spectroscopy of single atoms to information storage*
9:20- 10:05	Stuart MacCormack	*Phase-locking of laser diode arrays*
10:10 - 10:40	**COFFEE BREAK**	
10:40 - 11:25	Shimon Weiss	*Ultrafast scanning probe microscopy*
11:30	**LUNCH**	
12:30	**BUS DEPARTS**	

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†The Gordon Research Conference International Activities Subcommittee asks us to consider holding a meeting at one of the Gordon Research foreign sites. As the field of Lasers and Nonlinear Optics has a large non-US contingent, it could make sense to do so. They assure us that we will not give up our scheduling seniority by missing one conference in New England.

If as a group we have an interest in such a meeting, we need to have a foreign co-Chair who can work with the upcoming Chair (Yaron Silberberg). We can elect such a co-Chair, or he/she can be selected by the Chair.

At this moment there are six foreign conferences — three in Italy in the Spring and three in Germany in the Fall. Also two conferences were held in Hawaii last November. — DZA

The organizers of this Gordon Research Conference on Nonlinear Optics and Lasers are very grateful for the support of its sponsors. In addition to the Gordon Research Conferences these include the Air Force Office of Scientific Research, the Army Research Office, the National Science Foundation and the Office of Naval Research. Their support made possible the participation of many of the speakers and attendees, particularly students and young faculty, who would otherwise not have had the opportunity to do so.

DON RESEARCH CONFERENCES
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August 01-06, 1993

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