

CLEO/QELS:2010 報告

**東京大学大学院 新領域創成科学研究科 物質系専攻
三尾研究室 博士課程3年**

大前 宣昭

報告の概要

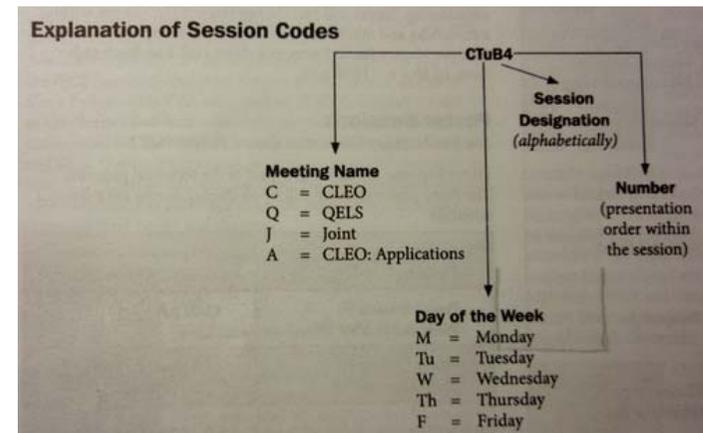
- 2010年5月15日-23日に国際学会「CLEO/QELS:2010」に行ってきました.
 - CLEO/QELSについて など.
- 自分の発表について.
 - 外部共振器型波長変換を利用した高出力CW緑色レーザーの開発.
- 他人の発表について.
 - 重力波関係.
 - ドイツのスクイーザー.
 - フランスのファイバーアンプタイプの重力波検出器用光源.
 - ほかの話.
 - レーザーの波長変換の話.
 - コーティングの損傷の話.
- さいごに.

CLEO/QELSとは？

- 会議名について。
 - CLEO: Conference on Laser and Electro-Optics
 - QELS: Quantum Electronics and Laser Science conference
- “光・レーザー・電気光学・量子エレクトロニクス”の学会といったところ。
- スポンサーはAPS, IEEE photonics society, OSA.
- 年1回開催される。
- CLEO/QELSのプログラム番号の読み方
 - アブストラクトはOSAのサイトから取れるけど...

例: 自分の今回の発表「CWQ4」

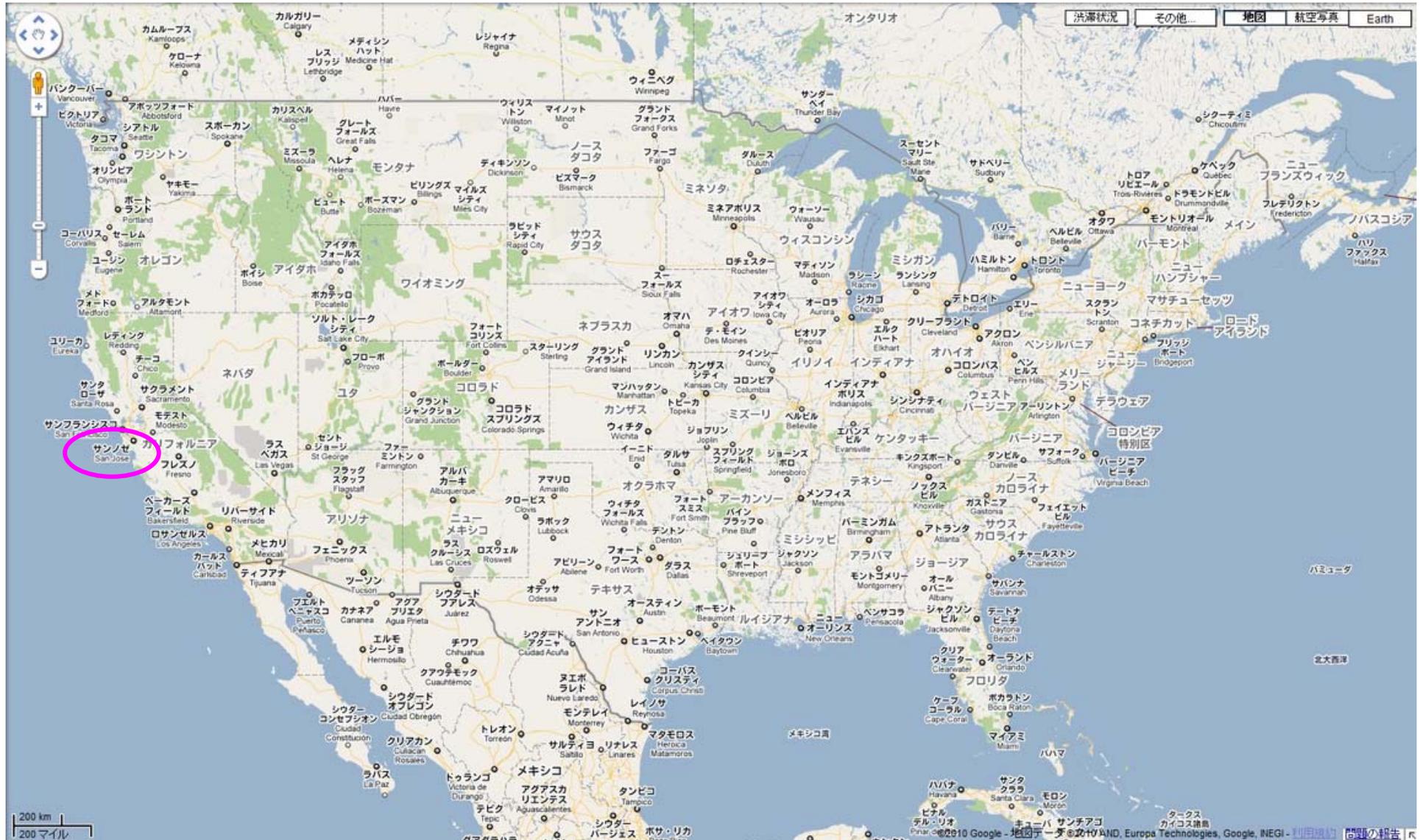
- 「CLEO」
- 「水曜」
- 「Q(17番目)のセッション」
- 「4番目」



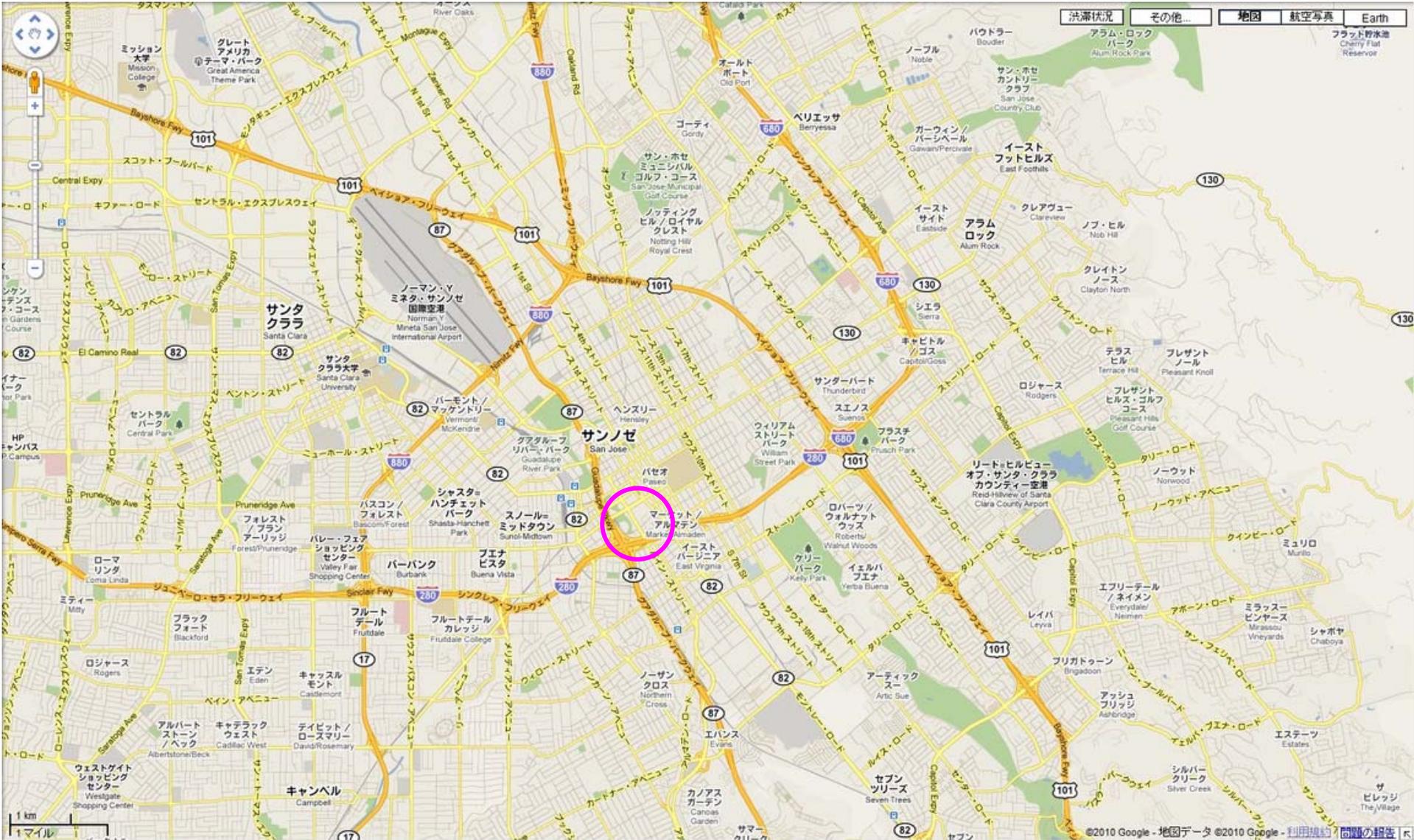
学会参加までのスケジュール

- 2009年4月:2010年度に海外に行く予定がないことに気づき, CLEO/QELS:2010に行ってみたいと思い, 先生に試しに言うてみる.
→先生「結果出して行くのなら, どんどん行きなさい」(たぶん, こんな感じ)
- 2009年11月中旬:CLEO/QELS:2010の×切が12月2日だと気づき, 時間のないことに気づく.
→先生「行きたいんでしょ?なら, やればいいじゃないの?」(たぶん, こんな感じ)
- 2009年11月下旬:急いで実験しながら, アブストラクト2ページ書く.
- 2009年12月2日:一般講演申込の×切にギリギリに申し込む.
- 2010年2月26日:講演できる(rejectではない)という通知が届く.
- 2010年3月5日:口頭発表だということ+詳しい日時の通知が届く.
- 2010年4月1日:Registrationを済ます.
- 2010年4月上旬:G-COE「未来を拓く物理科学結集研究拠点」の海外渡航援助を申請.
- 2010年5月15日出発, 16-21日学会, 22日出国→23日帰国.(→24-25日CLEO-MQM@早稲田大)
 - GWADW2010@京都(5月16日-21日)とまったく同じ日程.

San Jose, California, USA



San Jose, California, USA



移動手段

- サンノゼ空港→街中: VTAバス + VTAライトレール
 - サンフランシスコへは, VTAライトレール + 列車1時間.
 - サンノゼとサンフランシスコの中間くらいにStanford Univ.がある.



学会の場所

- San Jose McEnery Convention Center
+ San Jose Marriott (Hotel): 隣接(写真の左側)している.



- 反対(写真の右)側にHilton San Joseも隣接.

Technical bag

- 今年からバッグがなくなり、ビニール袋になったらしい。



レーザー発明50周年の展示



レーザー発明50周年の展示

1999: Ahmed Zewail of the California Institute of Technology receives the Nobel Prize in Chemistry for laser studies of chemical reactions on femtosecond time scales.

Intense femtosecond pulses from Livermore's Petawatt laser create antimatter, generating million-electronvolt nuclear reactions that normally require a particle accelerator.

Merger of JDS Fitel and Uniphase creates a company valued at \$6-\$7 billion, surprising market observers.

CoreTek Inc. of Burlington, Massachusetts, demonstrates a tunable vertical cavity surface emitting laser (VCSEL) single-mode tunable output to 2 milliwatts in the 1550-nanometer band. A micro-electro-mechanical cavity allows rapid continuous tuning in the wavelength range of 1520 to 1620 nm used for DWDM.

Inauguration of the Laser Interferometer Gravitational-Wave Observatory (LIGO), a facility dedicated to the detection of cosmic gravitational waves. LIGO is one of a number of laser interferometer detectors operating or under construction through the world and in space: GEO600 in Germany, VIRGO in Italy, LCGT in Japan and eventually LISA in space.

会議のプログラム

- 全体プログラム (http://www.cleoconference.org/Conference_Program/glance.aspx)

Event	SUNDAY May 16	MONDAY May 17	TUESDAY May 18	WEDNESDAY May 19	THURSDAY May 20	FRIDAY May 21
Registration	7:30 a.m.–5:30 p.m.	7:00 a.m.–5:00 p.m.	7:00 a.m.–5:00 p.m.	7:30 a.m.–5:00 p.m.	7:30 a.m.–5:00 p.m.	8:00 a.m.–12:00 p.m.
Short Courses	9:00 a.m.–6:00 p.m.	8:00 a.m.–5:00 p.m.	8:30 a.m.–5:30 p.m.			
History of the Laser Symposium	3:00 p.m.–6:00 p.m.					
Plenary Sessions		6:00 p.m.–8:30 p.m.		8:00 a.m.–10:30 a.m.		
CLEO/Laser Focus World Innovation Award Presentation		7:00 p.m.				
Technical Sessions, Tutorials and Symposia		8:00 a.m.–5:30 p.m.	8:00 a.m.–6:30 p.m.	1:30 p.m.–6:30 p.m.	8:00 a.m.–6:30 p.m.	8:00 a.m.–12:00 p.m.
CLEO: Expo		10:00 a.m.–5:00 p.m.	10:00 a.m.–5:00 p.m.	10:00 a.m.–3:00 p.m.		
Exhibit-Only Times				10:30 a.m.–12:00 p.m. 3:15 p.m.–4:45 p.m.		
CLEO: Market Focus			10:30 a.m.–12:30 p.m. 3:00 p.m.–5:00 p.m.	12:00 p.m.–2:30 p.m. 3:00 p.m.–5:00 p.m.	1:00 p.m.–3:00 p.m.	
Power Lunch			12:30 p.m.–1:30 p.m.			
CLEO: Technology Transfer					10:30 a.m.–12:45 p.m.	
Poster Sessions		1:00 p.m.–2:30 p.m.	12:00 p.m.–1:30 p.m.	1:00 p.m.–2:30 p.m.		
Job Fair		10:00 a.m.–5:00 p.m.	10:00 a.m.–5:00 p.m.			
Conference Reception			6:30 p.m.–8:00 p.m.			
Postdeadline Paper Sessions					8:00 p.m.–10:00 p.m.	

会議のセッションの構成

- 月曜
 - この日はずっと口頭発表ばかり

- 14個の平行セッション
 - 聞きたい話が同時刻になることがあった。

Agenda of Sessions — Monday, May 17

	Room A1	Room A2	Room A3	Room A4	Room A5	Room A6	Room A7	Room A8	Room C1&2	Room C3&4	San Jose Ballroom IV (San Jose Marriott)	Room B2-B3	San Jose Salon I & II (San Jose Marriott)	San Jose Salon III (San Jose Marriott)
8:00 a.m.–9:45 a.m.	CMA • Ultrafast Dynamics and Measurements	CMB • CLEO Symposium on Photonics for Advanced Energy Technology: Green Photonic Sources and Networks	CMC • Novel Pulse Fiber Sources	CMD • Lattice Clocks and EUV Generation	QMA • Novel Phenomena I	CME • VCSEL I	QMB • Plasmonic Devices	CMF • THz Detection	CMG • Quasi-Phase-matching Materials	CMH • Laser Surface Structuring	JMA • Joint CLEO/QELS Symposium on Optomechanics for Physical and Biological Sciences I: Physics	AMA • Imaging and Restoring the Eye	CMI • Passive and Active Resonators	CMU • Novel Sources and Systems for Spectroscopic Sensing
8:00 a.m.–12:00 p.m.	SC153 Quasi-Phase-matching for Wavelength Conversion and All-Optical Nonlinear Processing, SC182 Biomedical Optical Diagnostics and Sensing							SC153 Quasi-Phase-matching for Wavelength Conversion and All-Optical Nonlinear Processing, SC182 Biomedical Optical Diagnostics and Sensing						
8:30 a.m.–5:30 p.m.	SC136 Understanding Lasers and Critical Optical Components							SC136 Understanding Lasers and Critical Optical Components						
9:00 a.m.–12:00 p.m.	SC147 Optical Fiber Communication Systems, SC165 Laser Diode-Pumped Solid-State Lasers, SC302 MetaMaterials							SC147 Optical Fiber Communication Systems, SC165 Laser Diode-Pumped Solid-State Lasers, SC302 MetaMaterials						
9:45 a.m.–10:15 a.m.	Coffee Break, San Jose McEnery Convention Center, Concourse Level							Coffee Break, San Jose McEnery Convention Center, Concourse Level						
10:15 a.m.–12:00 p.m.	CMK • Pulse Measurement	CML • CLEO Symposium on Photonics for Advanced Energy Technology: Photonics for Power Generation and Delivery	CMM • Non-Silica Fiber	CMN • Frequency Combs I	QMC • Novel Phenomena II	CMO • VCSEL II	QMD • Surface Plasmon Polaritons	CMP • Intense THz Phenomena	CMQ • Waveguides	CMR • Laser Nanostructuring	JMB • Joint CLEO/QELS Symposium on Optomechanics for Physical and Biological Sciences II: Physics	AMB • Microscopy and Endoscopy	CMS • Microring Resonator Optical and RF Processing	CMV • Cavity-Enhanced Sensing
12:00 p.m.–1:30 p.m.	Lunch Break (on your own)							Lunch Break (on your own)						
1:30 p.m.–5:30 p.m.	SC149 Foundations of Nonlinear Optics, SC160 Microwave Photonics, SC194 Photonic Crystal Fibers and Devices, SC316 Organic Photonic Devices, SC333 Intellectual Property: Bringing Academic Invention to the Market							SC149 Foundations of Nonlinear Optics, SC160 Microwave Photonics, SC194 Photonic Crystal Fibers and Devices, SC316 Organic Photonic Devices, SC333 Intellectual Property: Bringing Academic Invention to the Market						
1:30 p.m.–3:15 p.m.	CMU • Pulse Measurement and Propagation	CMV • Detectors and All-Optical Switching	CMW • Novel Fiber Sources	CMX • Frequency Combs II	QME • Scattering and Emission by Aperiodic Media	CMY • Short Pulse Lasers	QMF • Plasmonic Waveguides	CMZ • THz Domain Spectroscopy	CMAA • Advanced Concepts in Photovoltaics	CMBB • Advanced Beam Shaping for Laser Processing	JMC • Joint CLEO/QELS Symposium on Optomechanics for Physical and Biological Sciences III: Technology	AMC • Sensing and Imaging	CMCC • General Aspects of Nonlinear Optics	CMDD • Mid-IR
3:15 p.m.–3:45 p.m.	Coffee Break, San Jose McEnery Convention Center, Concourse Level							Coffee Break, San Jose McEnery Convention Center, Concourse Level						
3:45 p.m.–5:30 p.m.	CMEE • Pulse Shaping	CMFF • Quantum Emitter Photonic Devices	CMGG • Photo-darkening and Specialty Fibers (ends at 5:15)	CMHH • Multi-GHz Combs and Astronomical Applications	QMG • Localization and Propagation in Disordered Media	CMII • Modelocked Lasers	QMH • Plasmonic Antennas	CMJJ • THz Ultrafast Generation	CMKK • Efficiency in Solid-State Lighting	CMLL • Laser Structuring of Optical Materials	JMD • Joint CLEO/QELS Symposium on Optomechanics for Physical and Biological Sciences IV: Bio	AMD • Spectroscopy and Imaging	CMMM • Super Continuum and Multi-Wavelength Generation	CMNN • Short Pulse
5:30 p.m.–6:00 p.m.	Break (Civic Auditorium doors will open at 5:45 p.m. for the Plenary)							Break (Civic Auditorium doors will open at 5:45 p.m. for the Plenary)						
6:00 p.m.–8:30 p.m.	CLEO and CLEO: Applications Plenary Session, Civic Auditorium							CLEO and CLEO: Applications Plenary Session, Civic Auditorium						

会議のセッションの構成

- 火曜
 - ポスターセッションが登場.

Agenda of Sessions — Tuesday, May 18

	Room A1	Room A2	Room A3	Room A4	Room A5	Room A6	Room A7	Room A8	Room C1&2	Room C3&4	San Jose Ballroom IV (San Jose Marriott)	Room B2-B3	San Jose Salon I & II (San Jose Marriott)	San Jose Salon III (San Jose Marriott)
8:00 a.m.–9:45 a.m.	CTuA • Pulse Synthesis and Timing	CTuB • Chemical/Biological/Medical Sensing	CTuC • High Power Fiber Lasers	CTuD • Optofluidics for Medical and Spectroscopic Applications	QTuA • Nonlinear Frequency Generation and Spectroscopy	CTuE • 3-5 nm Semiconductor Lasers	QTuB • Cavity QED and Optomechanics	CTuF • THz Metamaterials	CTuG • Beam Shaping and Switching	JTuA • Nonablative Direct-Write Processing	CTuH • Photonic Crystals I	JTuB • Novel Materials for Enhanced Solar Cell Performance	CTuI • Two Wave and Four Wave Mixing Processes	CTuJ • Advanced Solid-State Concepts
8:30 a.m.–12:30 p.m.	SC157 Laser Beam Analysis, Propagation and Shaping Techniques, SC163 Practical OPOs, SC167 Fundamentals of Semiconductor Lasers: Edge-Emitters to Micro Cavity Devices, SC270 High Power Fiber Lasers and Amplifiers							SC157 Laser Beam Analysis, Propagation and Shaping Techniques, SC163 Practical OPOs, SC167 Fundamentals of Semiconductor Lasers: Edge-Emitters to Micro Cavity Devices, SC270 High Power Fiber Lasers and Amplifiers						
9:30 a.m.–12:30 p.m.	SC221 Nano-Photonics: Physics and Techniques, SC334 The Art of Modeling Optical Systems, SC337 Single Photon Detection							SC221 Nano-Photonics: Physics and Techniques, SC334 The Art of Modeling Optical Systems, SC337 Single Photon Detection						
10:00 a.m.–10:30 a.m.	Coffee Break, San Jose McEnery Convention Center, Exhibit Halls 1 and 2													
10:00 a.m.–5:00 p.m.	Exhibit Open, San Jose McEnery Convention Center, Exhibit Halls 1, 2 and 3													
10:30 a.m.–12:15 p.m.	CTuK • Ultrafast Sources	CTuL • Cavity Enhanced Optical Forces and Sensing	CTuM • Nonlinear Fiber Sources	CTuN • Optofluidic Biosensors	QTuC • Spatial and Temporal Solitons	CTuO • Photonic Crystal/Novel Waveguide Lasers	CTuP • CLEO Symposium on Novel Optical Fibers: Biochemical and Biomedical Applications	CTuQ • THz Waveguides	CTuR • Organic Optical Materials	CTuS • Precision Spectroscopy	QTuD • QELS Symposium on Nanophotonics and Metamaterials I: Metamaterials	JTuC • Applications of Laser Machining and Deposition	CTuT • Nonlinear Effects in Photonic Crystal Fibers	CTuU • Waveguides and Microlasers
10:30 a.m.–12:30 p.m.	Market Focus: Photonics for Energy I, San Jose McEnery Convention Center, Exhibit Hall 2							Market Focus: Photonics for Energy I, San Jose McEnery Convention Center, Exhibit Hall 2						
12:15 p.m.–1:00 p.m.	Lunch Break (concessions available on exhibit floor)													
12:30 p.m.–1:30 p.m.	CLEO Power Lunch, San Jose McEnery Convention Center, Exhibit Hall 2													
1:00 p.m.–2:30 p.m.	JTuD • Joint CLEO/QELS Poster Session I, San Jose McEnery Convention Center, Exhibit Hall 3													
1:30 p.m.–5:30 p.m.	SC123 Erbium-Doped Fiber Amplifiers and Raman Fiber Amplifiers, SC143 Introductory and Intermediate Topics in Polarized Light, SC155 Ultrashort Laser Pulse Measurement, SC319 Quantum Dot Laser Diodes, SC335 Super-Resolution Optical Microscopy, SC353 An Overview of R&D Program Management							SC123 Erbium-Doped Fiber Amplifiers and Raman Fiber Amplifiers, SC143 Introductory and Intermediate Topics in Polarized Light, SC155 Ultrashort Laser Pulse Measurement, SC319 Quantum Dot Laser Diodes, SC335 Super-Resolution Optical Microscopy, SC353 An Overview of R&D Program Management						
2:30 p.m.–4:15 p.m.	CTuV • Ultrafast Yb-Doped Sources	CTuW • High-Contrast Periodic Reflector Devices (ends at 3:45 p.m.)	CTuX • Super Continuum Fiber Source	CTuY • Optofluidic Materials and Sensing Systems	QTuE • Two-Photon Processes	CTuZ • Quantum Dot and Quantum Dash Lasers	CTuAA • CLEO Symposium on Novel Optical Fibers: Fibers for Telecommunications and Geophysics	CTuBB • Nonlinear and Linear THz Spectroscopy	CTuCC • Deep Ultraviolet LEDs	CTuDD • Precision Signal Generation and Distribution	QTuF • QELS Symposium on Nanophotonics and Metamaterials II: Nanophotonics	ATuA • Optical Communications Networks and Systems	CTuEE • Nonlinear Effects in Fibers and Waveguides	CTuFF • High Power Short Pulse
3:00 p.m.–5:00 p.m.	Market Focus: Photonics for Energy II, San Jose McEnery Convention Center, Exhibit Hall 2							Market Focus: Photonics for Energy II, San Jose McEnery Convention Center, Exhibit Hall 2						
4:15 p.m.–4:45 p.m.	Coffee Break, San Jose McEnery Convention Center, Exhibit Halls 1 and 2													
4:45 p.m.–6:30 p.m.	CTuGG • Mid-IR Femtosecond Pulse Generation/Amplification	CTuHH • Slow and Fast Light in High Index Contrast Systems	CTuII • Saturable Absorber Mode-Locked Fiber Lasers	CTuJJ • Optofluidic Trapping, Sorting and Manipulation	QTuG • Nonlinear Optics in Photonic Crystal Structures	CTuKK • Narrow Linewidth and Injection Locked Lasers	CTuLL • CLEO Symposium on Novel Optical Fibers: Microstructured and Micro-filled Fibers	CTuMM • THz Quantum Cascade Lasers	CTuNN • Nanostructure Enhanced LEDs	CTuOO • Microscopy and Interferometry	QTuH • QELS Symposium on Nanophotonics and Metamaterials III: Metamaterials	ATuB • Optical Communications Techniques and Components	CTuPP • Nonlinear Optical Phenomena and Filamentation	CTuQQ • High Power Lasers
6:30 p.m.–8:00 p.m.	Welcome Reception, San Jose McEnery Convention Center													
8:00 p.m.–10:30 p.m.	Lasers Rock! Concert, Civic Auditorium													

会議のセッションの構成

- 水曜(自分が発表した日)

Agenda of Sessions – Wednesday, May 19

	Room A1	Room A2	Room A3	Room A4	Room A5	Room A6	Room A7	Room A8	Room C1&2	Room C3&4	San Jose Ballroom IV (San Jose Marriott)	Room B2-B3	San Jose Salon I & II (San Jose Marriott)	San Jose Salon III (San Jose Marriott)
8:00 a.m.–10:30 a.m.	Joint CLEO/QELS Plenary Session, Civic Auditorium							Joint CLEO/QELS Plenary Session, Civic Auditorium						
10:00 p.m.–5:00 p.m.	Exhibit Open, San Jose McEnery Convention Center, Exhibit Halls 1, 2 and 3							Exhibit Open, San Jose McEnery Convention Center, Exhibit Halls 1, 2 and 3						
10:30 a.m.–12:00 p.m.	Coffee Break, San Jose McEnery Convention Center, Exhibit Halls 1 and 2 Exhibit ONLY Time 10:30 a.m.–12:00 p.m.							Coffee Break, San Jose McEnery Convention Center, Exhibit Halls 1 and 2 Exhibit ONLY Time 10:30 a.m.–12:00 p.m.						
11:00 a.m.–12:00 p.m.	Lunch Break (concessions available on show floor)							Lunch Break (concessions available on show floor)						
12:00 p.m.–1:30 p.m.	JWA • Joint CLEO/QELS Poster Session II, San Jose McEnery Convention Center, Exhibit Hall 3							JWA • Joint CLEO/QELS Poster Session II, San Jose McEnery Convention Center, Exhibit Hall 3						
12:00 p.m.–2:30 p.m.	Market Focus: Industrial Lasers, San Jose McEnery Convention Center, Exhibit Hall 2							Market Focus: Industrial Lasers, San Jose McEnery Convention Center, Exhibit Hall 2						
1:30 p.m.–3:15 p.m.	CWA • Carrier Envelope Phase Stabilization and Few Cycle Generation I	CWB • Photonic Crystals II: Cavities	CWC • Fiber Design	CWD • Multiphoton Microscopy	QWA • Optical Filamentation and Propagation Phenomena	CWE • High Power Lasers	QWB • Hyperbolic Metamaterials and Their Applications	QWC • Spin Dynamics	CWF • THz Sources	CWG • Components and Subsystems	QWD • QELS Symposium on Quantum Repeaters and Networks: Quantum Repeater Interface Systems	JWB • Optical Ranging and Measurements	CWH • Ultrafast and Broadband Applications of Nonlinear Optics	CWI • Transmission and Integrated Photonics
3:00 p.m.–5:00 p.m.	Market Focus: Photonics for Defense and Security, San Jose McEnery Convention Center, Exhibit Hall 2							Market Focus: Photonics for Defense and Security, San Jose McEnery Convention Center, Exhibit Hall 2						
3:15 p.m.–4:45 p.m.	Coffee Break, San Jose McEnery Convention Center, Exhibit Halls 1 and 2 Exhibit ONLY Time 3:15 p.m.–4:45 p.m.							Coffee Break, San Jose McEnery Convention Center, Exhibit Halls 1 and 2 Exhibit ONLY Time 3:15 p.m.–4:45 p.m.						
4:45 p.m.–6:30 p.m.	CWJ • Carrier Envelope Stabilization and Few Cycle Generation II	CWK • Photonic Crystals III: Lasers (ends at 6:15 p.m.)	CWL • Fiber Modal Interactions	CWM • Optofluidics for Photonic Applications	QWE • Nonlinear Integrated Optics	CWN • Tunable Semiconductor Lasers	QWF • Toward Three-Dimensional Metamaterials	QWG • Ultrafast Processes in Condensed Matter	CWO • THz Imaging	CWP • Interconnect Technologies	QWH • QELS Symposium on Quantum Repeaters and Networks: Quantum Repeater Components	AWA • Novel Sensing Applications	CWQ • Harmonic Generation	JWC • High-Field and High-Energy Density Science

自分が発表したセッション

会議のセッションの構成

- 木曜

Agenda of Sessions — Thursday, May 20

	Room A1	Room A2	Room A3	Room A4	Room A5	Room A6	Room A7	Room A8	Room C1&2	Room C3&4	San Jose Ballroom IV (San Jose Marriott)	San Jose Salon III (San Jose Marriott)	San Jose Salon I & II (San Jose Marriott)	Room B2-B3
8:00 a.m.–9:45 a.m.	CTHA • High Average Power Lasers	CTHB • Photonic Crystal Fiber Devices and Dispersion (ends at 9:30)	CTHC • Advanced Modulation Formats	CTHD • Microscopy: Applications	QTHA • Distributed Quantum Information	CTHE • Quantum Cascade Lasers	QTHB • Fundamentals of Metamaterials	QTHC • Low Dimensional Quantum Systems	QTHD • Photodetection in Quantum Communication	CTHF • Microwave Photonics	CTHG • CLEO Symposium on Laser Beam Combining I: Coherent Beam Combining: Techniques and Applications	JTHA • Attosecond Science	CTHH • Mid-IR Parametric Sources	JTHB • In situ Laser-Based Sensing
10:00 a.m.–10:30 a.m.	Coffee Break, San Jose McEnery Convention Center, Exhibit Halls 1 and 2							Coffee Break, San Jose McEnery Convention Center, Exhibit Halls 1 and 2						
10:00 a.m.–3:00 p.m.	Exhibit Hall Open, San Jose McEnery Convention Center, Exhibit Halls 1, 2 and 3							Exhibit Hall Open, San Jose McEnery Convention Center, Exhibit Halls 1, 2 and 3						
10:30 a.m.–12:15 p.m.	CTHI • Saturable Absorber Mode-Locked Sources	CTHJ • Silicon Modulators and Switches	CTHK • Access Networks	CTHL • Quantum Wires and Dots	JTHC • Joint CLEO/QELS Symposium on Quantum Control I	CTHM • High Power/Broadly Tunable QCLS	QTHE • Plasmonic Metamaterials	QTHF • Collective Excitation and Losing in Semiconductors	QTHG • Single Photon Technology and Applications	CTHN • Waveguide Applications	CTHO • CLEO Symposium on Laser Beam Combining II: Beam-Combined Fiber Lasers and Amplifiers	JTHD • Ultrafast and Short Wavelength Technology	CTHP • Optical Parametric Oscillators I	JTHI • Laser Fusion
10:30 a.m.–12:30 p.m.	Market Focus: Biophotonics, San Jose McEnery Convention Center, Exhibit Hall 2							Market Focus: Biophotonics, San Jose McEnery Convention Center, Exhibit Hall 2						
12:15 p.m.–1:00 p.m.	Lunch Break (concessions available on exhibit floor)							Lunch Break (concessions available on exhibit floor)						
1:00 p.m.–2:30 p.m.	JTHE • Joint CLEO/QELS Poster Session III, San Jose McEnery Convention Center, Exhibit Hall 3							JTHE • Joint CLEO/QELS Poster Session III, San Jose McEnery Convention Center, Exhibit Hall 3						
1:30 p.m.–2:30 p.m.	Market Focus Technology Transfer Session, San Jose McEnery Convention Center, Exhibit Hall 2							Market Focus Technology Transfer Session, San Jose McEnery Convention Center, Exhibit Hall 2						
2:30 p.m.–4:15 p.m.	CTHQ • High Harmonic Generation	CTHR • Nonlinear Silicon Photonics	CTHS • Photonic Crystal Devices	CTHT • Microscopy: Technology Development	JTHF • Joint CLEO/QELS Symposium on Quantum Control II	CTHU • THz QCLS	QTHI • Nanoplasmonics	CTHV • Fabrication of Photonic Structures	QTHJ • Quantum Communication	CTHW • Novel Waveguides	CTHX • CLEO Symposium on Laser Beam Combining III: Beam Combining and Locking of High-Power Diode Lasers	JTHG • Extreme Light	CTHY • Optical Parametric Oscillators II	JTHH • High Energy Lasers for Defense Applications
4:15 p.m.–4:45 p.m.	Coffee Break, San Jose McEnery Convention Center, Concourse 1							Coffee Break, San Jose McEnery Convention Center, Concourse 1						
4:45 p.m.–6:30 p.m.	CTHZ • Parametric Generation	CTHAA • Silicon Photonics	CTHBB • Tunable Networks and Regeneration	CTHCC • Superresolution Imaging	QTHJ • Quantum Coherence and Entanglement	QTHK • Single Emitters and Photons	QTHL • Plasmonic and Nanophotonic Emission Control	QTHM • Semiconductor Photonic Structures	QTHN • Quantum Imaging and Sensing		CTHDD • FEC and Signal Processing	JTHI • High Harmonic Generation	CTHEE • Quasi-Phase-matching Devices	JTHJ • Standoff Laser Sensing
6:30 p.m.–8:00 p.m.	Dinner Break (on your own)							Dinner Break (on your own)						
8:00 p.m.–10:00 p.m.	CLEO/QELS Postdeadline Paper Sessions, San Jose McEnery Convention Center, Rooms A6, A7, and A8							CLEO/QELS Postdeadline Paper Sessions, San Jose McEnery Convention Center, Rooms A6, A7, and A8						

会議のセッションの構成

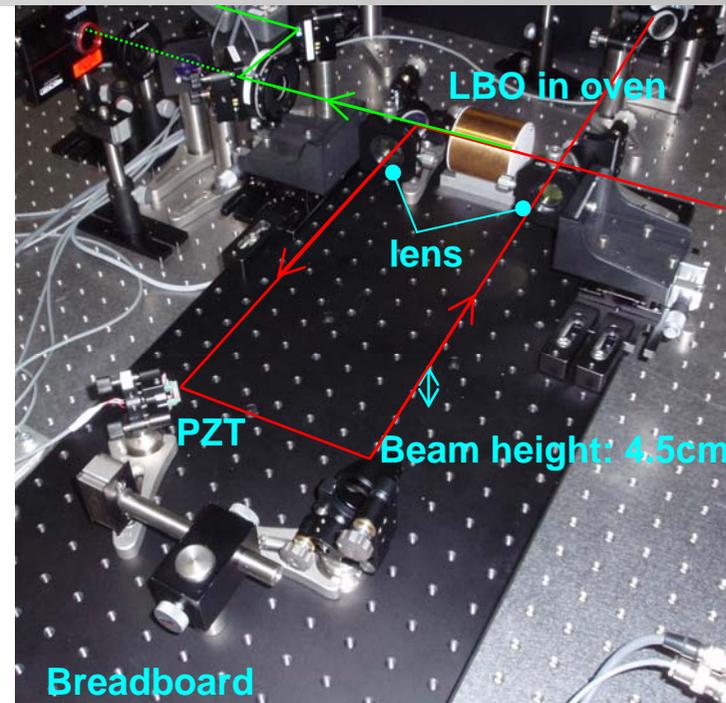
- 金曜
 - － 最終日は午前で終わり.

Agenda of Sessions — Friday, May 21

	Room A1	Room A2	Room A3	Room A4	Room A5	Room A6	Room A7	Room A8	Room C1&2	Room C3&4	San Jose Ballroom IV (San Jose Marriott)	Room B2-B3	San Jose Salon I & II (San Jose Marriott)	San Jose Salon III (San Jose Marriott)
8:00 a.m.–9:45 a.m.	CFA • Surface-Enhanced and Fiber Raman Technologies	CFB • Metamaterial Devices	CFE • Security and Optical Monitoring	CFD • Ultrafast Fiber Amplifiers	QFA • Nonclassical Light	QFB • Quantum Optical Sources and Processes	QFC • Nanoresonators	QFD • Quantum Dots	QFE • Optical Interactions with Cold Atoms	CFE • Integration for Optical Communications	CFE • 3-D Nanostructured Photonic Materials	AFA • Imaging and Lithography	CFG • Nonlinear Optical Materials	JFA • Intense X-Ray Sources and Applications
9:45 a.m.–10:15 a.m.	Coffee Break, San Jose McEnery Convention Center, Concourse Level							Coffee Break, San Jose McEnery Convention Center, Concourse Level						
10:15 a.m.–12:00 p.m.	CFH • Fiber Optic Sensing	CFI • Plasmonic Devices	CFJ • Optical Networks	CFK • Yb and Tm Ultrafast Fiber Oscillators (ends at 12:15 p.m.)	QFF • Quantum State Reconstruction	QFG • Laser Cooling and Terahertz Applications	QFH • Photonic Crystals and Cavity Phenomena	QFI • Excitons	QFJ • Correlations and Coherence	CFL • Optical Signal Processing	CFM • Fabrication and Characterization	AFB • Novel Devices and Methods	CFN • Optical Parametric Amplifiers and Optical Parametric Generation	JFB • Laser Particle Acceleration

自分の発表(CWQ4)の概略

- イントロ
 - 高出力緑色レーザー
 - レーザー加工
 - レーザーディスプレイ
 - Ti:Sレーザーの励起 etc.
- 実験装置
 - 基本波: 100W Nd:YAG
 - 非線形結晶: LBO
 - 外部共振器型波長変換
- 実験結果
 - 出力: 40W
 - CW
 - $\lambda=532\text{nm}$
- 詳細はまた後日.



他人の話① (JTuD36)

- High power fiber amplifier for Advanced Virgo
 - C. Gréverie¹, A. Brillet¹, C. N. Man¹, J. P. Coulon¹, and K. Feliksik²
 - Observatoire de la Côte d’Azur at CNRS Artemis¹, Nufern²
 - 30-40 mW (NPRO) => 10 W (Fiber-amp) => 100-150 W (Fiber-amp)
 - ファイバーをCooling & Heating
 - 誘導ブリュリアン散乱が起きないように.

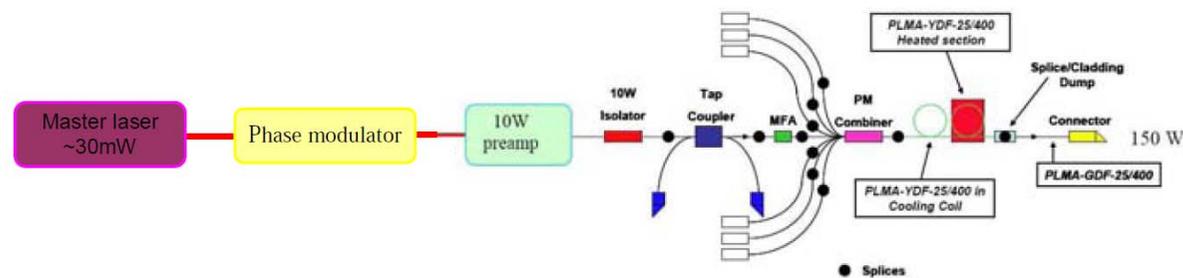


Figure 1: Amplifier optical diagram

他人の話① (JTuD36)

- 強度雑音・強度安定化
 - フリーランで $RIN = 10^{-4} - 10^{-5} \text{ 1/rtHz}$ くらい.
 - 2 kHz付近にpump diode起因のノイズ.
 - Diode current で強度安定化(UGF = 30 kHz)
 - In-loop で $RIN = 4 \times 10^{-9} \text{ 1/rtHz @ 20 Hz} - 10 \text{ kHz}$
 - Out-of-loop は測ってないとのこと.

- 周波数雑音・周波数安定化
 - フィネス1000の三角キャビティ+チルトロッキング.
 - フリーラン: 5kHz付近に少し盛り上がり.
 - NPROのピエゾ+導波路EOM(NPRO直後)で周波数安定化
 - UGF = 200kHz => ファイバー内伝播遅れ(500 ns)でリミット.
 - » 注入同期もファイバーアンプも同じ問題をぶつかるとのらしい.
 - » 出力にEOMを置けばUGF=1MHzくらい可能.

他人の話② (QFA1)

- Squeezed Light for Gravitational Wave Detection
 - Roman Schnabel (AEI): invited talk (30 min. + α)
 - スクイーミングの簡単な説明.
 - 重力波検出器とのつながり.
 - 世界各地のいろんな研究の紹介.
 - 12.7 dB @ 5 MHz.
 - 9 dB @ 10 Hz – 10 kHz.
 - 8 dB (> 48 hours)
 - GEO600にスクイザーを運んだ話.
 - トラックの荷台の写真.
 - 運んですぐスクイーミングを観測できたとのこと.
 - まもなく, GEO600で動作させるとのこと.
 - 次の人がいなくて(キャンセル?), 15分追加の質問時間が発生.

他人の話③ (CWQ7)

- 55%-Efficient, 13-W, Single-Pass SHG of a CW Yb-Fiber Laser in a Double-Crystal Scheme
 - G. K. Samanta¹, S. Chaitanya¹, K. Devi¹, and M. Ebrahim-Zadeh^{1,2}
 - ICFO-Institut de Ciències Fòniques, Mediterranean Technology Park¹, Institutio Catalana de Recerca i Estudis Avancats (ICREA)²
- シングルパスで高出力CW緑色光を得る話.
- 基本波と倍波両方を再び集光して2個目の結晶に入れる.
 - シングルパスで効率55%.
 - 2本でも3本でも55%でなぜかリミット.
 - 熱のせいだと言ってた.
 - しかも、その後効率悪化.
 - 温調が独立なので、有利に働く.

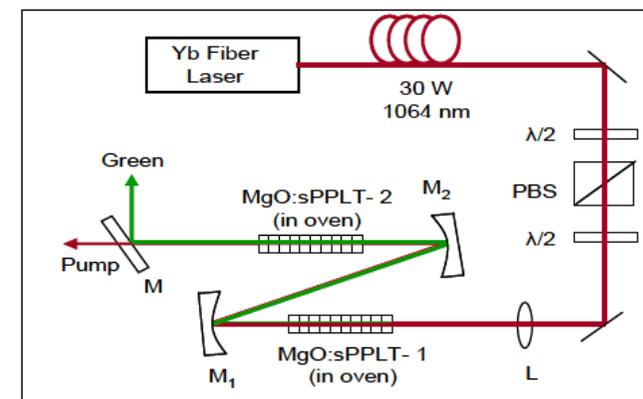


Fig. 1. Schematic of the experimental design for single-pass, double-crystal cw SHG. $\lambda/2$, half-wave plate; PBS, polarizing beam splitter; L, lens; M, mirrors

他人の話④ (CMG4)

- Sub-watts 355 nm generation with 2nd – and 3rd – order-QPM PPMgSLT
 - J. Hirohashi, K. Imai, H. Motegi, Y. Tomihari, T. Fukui, and Furukawa
 - OXIDE corp.

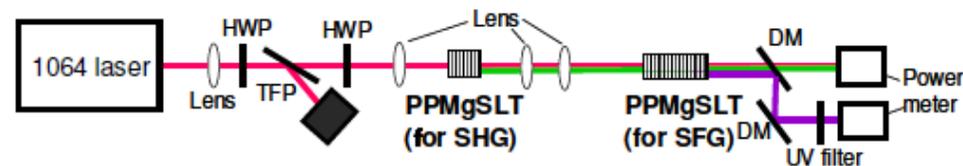


Fig. 2. Schematic view of 355 nm generation with 2 PPMgSLTs cascaded configuration

- UV を出すのに, LBOやBBOが使われるが, 非線形定数が大きい.
- QPMデバイスが使えるとよい. => SLTがcandidate.
 - 1st orderは周期が2.2 μm と小さくて難しい.
 - 3rd order: 6.6 μm (50%/50%)を作った.
 - 7 W(基本波)+2.9 W(2倍波) => 0.7 W (3倍波) ※パルスレーザー
 - 2nd order: 4.4 μm (75%/25%)を作った. => 効率よく1 W以上.

残念だった話 (AFB1)

- Optical Damage Testing Using High-Power Lasers

- R. Seaver, R. Brady, J. Pentony, and R. Shori

- Naval Air Systems Command, USA

=> 講演キャンセル & アブストラクトもなし.

- アブストラクトのアブストラクト

- コーティングの損傷は, レーザーの高出力化をリミットするファクターの一つ.

- コーティングのデザイン, 蒸着法, 損傷メカニズムについての結果を話す.

さいごに

- 次回開催予定.
 - CLEO/QELS:2011
 - URL <http://www.cleoconference.org/>
 - 2011年5月1日－6日
 - Baltimore Convention Center (Baltimore, Maryland, USA)
 - 講演の申込は2010年12月2日正午(EST), 17時(GMT).
 - 英語で2ページ.
 - Baltimoreは飯がイマイチという噂 =>確かめる必要がある！
 - また、行きたいなー.
- 自分の研究結果の詳細は、またの機会にお話します、たぶん.

