

100年度自然處專題計畫主持人近五年研究成果表

(修正：100/05/25物理預核用)

姓名：孔慶昌

一、近五年內(2006/1/1~2010/12/31)已出版之最具代表性研究成果至多六篇。

請依序填寫：作者(並以*號註記該篇所有的通訊作者)

著作名稱,

發表年份,期刊,卷數,頁次,(IF=X.XX,▲：被引用次數)

Han-Sung Chan, Zhi-Ming Hsieh, Wei-Hong Liang, A. H. Kung*, Chao-Kuei Lee, Chien-Jen Lai, Ru-Pin Pan, Lung-Han Peng, "Synthesis and Measurement of Ultrafast Waveforms from Five Discrete Optical Harmonics," Science 331, 1165-1168 (2011) (10.1126/science.1198397). (IF 29.747),▲：1

Zhi-Ming Hsieh, Chien-Jen Lai, Han-Sung Chan, Sih-Ying Wu, Chao-Kuei Lee, Wei-Jan Chen, Ci-Ling Pan, Fu-Goul Yee, and A. H. Kung*, "Controlling the Carrier-Envelope Phase of Raman-Generated Periodic Waveforms," Phys. Rev. Lett. 102, 213902 (2009). (IF 6.944),▲：8

Wei-Chun Hsu, Ying-Yao Lai, Chien-Jen Lai, Lung-Han Peng, Ci-Ling Pan, and A. H. Kung*, "Generation of Multi-Octave-Spanning Laser Harmonics by Cascaded QPM in a Monolithic Ferroelectric Crystal", Opt. Lett. 34, 3496-3498 (2009).(IF 3.711),▲：1

Wei-Jan Chen, Jhi-Ming Hsieh, Shu Wei Huang, Hao-Yu Su, Chien-Jen Lai, Tsung-Ta Tang, Chuan-Hsien Lin, Chao-Kuei Lee, Ru-Pin Pan, Ci-Ling Pan, and A. H. Kung*, "Sub-Single-Cycle Optical Pulse Train with Constant Carrier-Envelope Phase", Phys. Rev. Lett. 100, 163906 (2008). (IF 6.944),▲：28

Zhida Gao, Shih-Yu Tu, Shining Zhu, and A. H. Kung*, "Monolithic red-green-blue laser light source based on cascaded wavelength conversion in periodically-poled stoichiometric lithium tantalate", Appl. Phys. Lett. 89, 181101 (2006).(IF 3.977),▲：23

二、近五年內研究成果統計表

統計類別	2006		2007		2008		2009		2010		以上合計		已接受/2011	
	總篇數	IF總和	總篇數	IF總和	總篇數	IF總和	總篇數	IF總和	總篇數	IF總和	總篇數	IF總和	總篇數	IF總和
SCI期刊論文 (含共同作者)	7	27.345	3	8.647	6	18.843	4	18.139	3	8.069	23	81.043	2	33.925
SCI期刊論文 (限通訊作者)	4	12.339	1	3.598	3	12.354	3	14.543	0		11	42.834	1	29.747

勿與上欄重覆填寫 SCI期刊論文(限 非屬通訊之第一 作者)														
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說明：

1. SCI (Science Citation Index) 之Impact Factor係以**2009**年版本為準。
2. IF總和：係該年度論文所刊載期刊之Impact Factor總和。

三、近五年內獲獎情形及重要會議邀請演講至多五項。

Outstanding Scholar Award (傑出人才講座), Foundation for the Advancement of Outstanding Scholarship, Taiwan 2006-2011

A. H. Kung, "Ferroelectric photonic structures: characterization and device demonstration", paper CFN1, Conference on Lasers and Electro-optics, Baltimore, MD, May 6-11, 2007.(invited)

A. H. Kung, "Synthesis and carrier-envelope phase control of Raman-generated single cycle waveforms", CLEO/Pacific Rim, Shanghai, China, September 1, 2009.(invited)

Andy Kung, "Waveform Synthesis using Frequency Combs Generated by Molecular Modulation," 40th Winter Colloquium on Physics of Quantum Electronics, Snowbird, Utah, USA, Jan 3-7, 2010. (Plenary)

Andy Kung, "Synthesis and Measurement of Subfemtosecond Optical Waveforms," 10th Korean Conference on Advanced Lasers and Their Applications, Jeju Island, May 12-14, 2011. (plenary)

四、近五年內其他資料：擔任國際重要學術學會理監事、國際知名學術期刊編輯或評審委員等。

Member, Committee to review programs of universities and colleges in Taiwan 2006, 2007

Member, OSA Charles Townes Award Selection Committee 2009-2010

Program committee, ATTO2 International Conference on Attoscond Physics 2009

Program committee, ATTO3 International Conference on Attoscond Physics 2011

五、請簡述上述代表性研究成果之個人重要貢獻（至多一頁）。

In work described in these publications, generally I originated the initial idea in the work, formulated the direction of the research, solicited collaboration with experts who can supply the critical technologies that we need but do not have, guided the students and assistants in performing the experiments and in data analysis, often provided essential solution to problems that arise during the work, and wrote the paper with help from the student co-authors. For example, I recognized the use of commensurate frequencies to get constant carrier envelope phase in waveforms synthesized using a Raman frequency comb and guided the students on the experiment. Then I discovered the solution to controlling the carrier envelope phase of these waveforms by using the fundamental and second harmonic frequencies. These two developments are critical to the ultimate arbitrary waveform synthesis published in Science. In that work I provided the leadership that condensed a number of separate ideas provided by my students and collaborators to come up with the shaper-assisted

linear cross-correlation method to retrieve the arbitrary waveforms.

I was responsible for envisioning a multi-harmonic generation chip based on cascaded quasi-phase matching and guided my student to realize the process with help from my collaborator who has the technology in fabricating the crystal. The cascaded generation in a chip idea came from my experience in earlier work in red-green-blue color generation in a monolithic crystal.

六、近五年內著作目錄

A. H. Kung, publications from 2006:

A. Refereed journals: IF=impact factor

Andras Miklos, Shan-Chuang Pei, and A. H. Kung, “Multipass acoustically open photoacoustic detector for trace gas measurements”, Appl. Opt. 45, 2529-2535 (2006)(IF 1.717)

Xianglei Kong, I-An Tsai, Sahadevan Sabu, Chau-Chung Han, Yuan T. Lee, Huan-Cheng Chang,* Shih-Yu Tu, A. H. Kung, Chih-Che Wu, “Progressive stabilization of Zwitterionic structures in $H^+(Ser)_{2-8}$ studied by infrared multiphoton dissociation spectroscopy”, Angewandte Chemie-Inter. Ed. 45, 4130-4134 (2006). (IF 10.031)

L.-H. Peng, , Y.-H. Chen, C.-D. Lin, L.-F. Lin, and A. H. Kung, “Sub-micrometer domain engineering on periodically poled lithium niobate,” J. Crys. Growth 292, 328-331 (2006).(IF 1.809)

Y.-S. Wang, S. Sabu, S.-C. Wei, C.-M. J. Kao, X. L. Kong, S.-C. Liau, C.-C. Han, H.-C. Chang, S.-Y. Tu, A. H. Kung, and J. Z. H. Zhang. "Dissociation of heme from gaseous myoglobin ions studied by infrared multiphoton dissociation spectroscopy and Fourier-transform ion cyclotron resonance mass spectrometry,” J. Chem. Phys. 125, 133310 (2006). (IF 3.166)

Zhida Gao, Shih-Yu Tu, Shining Zhu, and A. H. Kung, “Monolithic red-green-blue laser light source based on cascaded wavelength conversion in periodically-poled stoichiometric lithium tantalate”, Appl. Phys. Lett. 89, 181101 (2006).(IF 3.977)

Shih-Yu Tu, A. H. Kung, Zhida Gao, Shining Zhu, Sunao Kurimura, and Keiji Kitamura, “Green-pumped high power optical parametric oscillator based on PPMgSLT”, Opt. Lett. 31, 3632 (2006).(IF 3.598)

Shu Wei Huang, Wei-Jan Chen, and A. H. Kung, “Vibrational molecular modulation in hydrogen”, Phys. Rev. A 74, 063825 (2006).(IF 3.047)

T. Trickl, A. H. Kung, and Y. T. Lee, “Krypton atom and testing the limits of extreme-ultraviolet tunable-laser spectroscopy”, Phys. Rev. A 75, 022501 (2007).(IF 3.047)

Chien-Jen Lai, L.-H. Peng, and A. H. Kung, “Optical interference in nonlinear photonic crystals”, Opt.

Lett. 32, 3200-3202 (2007).(IF 3.598)

L. M. Lee, S. C. Pei, D. F. Lin, M. C. Tsai, T. M. Tai, P. C. Chiu, D. H. Sun, A. H. Kung, and S. L. Huang, “Generation of tunable blue/green laser using ZnO:PPLN crystal fiber by self-cascaded second order nonlinearity,” J. Opt. Soc. Am. B24, 1909-1915 (2007).(IF 2.002)

L.-H. Peng, Y.-P. Tseng, K.-L. Lin, Z.-X. Huang, C.-T. Huang, and A.-H. Kung, “Depolarization field mitigated domain engineering in nickel diffused lithium tantalate”, Appl. Phys. Lett. 92, 092903 (2008) (IF 3.596)

S.-L. Wang, B.-C. Yeh, H.-M. Wu, L.-H. Peng, C.-M. Lai, T.-S. Ko, T.-C. Lu, S.-C. Wang, and A.-H. Kung, “Optical properties of *a*-plane GaN strained by photo-chemically grown gallium hydroxide”, Phys. Stat. Sol. (c) 5, 1780-1782 (2008).

Wei-Jan Chen, Jhi-Ming Hsieh, Shu Wei Huang, Hao-Yu Su, Chien-Jen Lai, Tsung-Ta Tang, Chuan-Hsien Lin, Chao-Kuei Lee, Ru-Pin Pan, Ci-Ling Pan, and A. H. Kung, “Sub-Single-Cycle Optical Pulse Train with Constant Carrier-Envelope Phase”, Phys. Rev. Lett. 100, 163906 (2008). (IF 6.944)

Hsi-Chun Liu, and A. H. Kung, “Substantial gain enhancement for optical parametric amplification and oscillation in twodimensional $\chi(2)$ nonlinear photonic crystals”, Opt. Express 16, 9714-9725 (2008). (IF 3.709)

Yin-Yu Lee, Tzan-Yi Dung, Re-Ming Hsieh, Jih-Young Yu, Yen-Fang Song, Grace H. Ho, Tzu-Ping Huang, Wan-Chun Pan, I-Chia Chen, Shih-Yu Tu, A. H. Kung, and L. C. Lee, “Autoionizing Rydberg Series (np' , nf') of Ar Investigated by Stepwise Excitations with Lasers and Synchrotron Radiation”, Phys. Rev. A 78, 022509 (2008). (IF 2.893)

Shih-Yu Tu, A. H. Kung, Sunao Kurimura, and Takeshi Ikegami, “Broadly Tunable UV Light Generation in a Compact PPMgSLT OPO with a High-Q Cavity”, Appl. Opt. 47, 5762-5766 (2008). (IF 1.701)

S.-L. Wang, C.-Y. Chen, M.-K. Hsieh, W.-C. Lee, A. H. Kung, and L.-H. Peng, “Phase-change memory devices based on gallium-doped indium oxide,” Appl. Phys. Lett. 94, 113503 (2009). (IF 3.596)

Zhi-Ming Hsieh, Chien-Jen Lai, Han-Sung Chan, Sih-Ying Wu, Chao-Kuei Lee, Wei-Jan Chen, Ci-Ling Pan, Fu-Goul Yee, and A. H. Kung, “Controlling the Carrier-Envelope Phase of Raman-Generated Periodic Waveforms,” Phys. Rev. Lett. 102, 213902 (2009). (IF 6.944)

Wei-Hsun Lin and A. H. Kung, “Arbitrary waveform synthesis by multiple harmonics generation and phasing in aperiodic optical superlattices”, Opt. Express 17, 16342-16351 (2009).(IF 3.888)

Wei-Chun Hsu, Ying-Yao Lai, Chien-Jen Lai, Lung-Han Peng, Ci-Ling Pan, and A. H. Kung, "Generation of Multi-Octave-Spanning Laser Harmonics by Cascaded QPM in a Monolithic Ferroelectric Crystal", Opt. Lett. 34, 3496-3498 (2009). (IF 3.711)

C.-M. Lai, I.-N. Hu, Y.-Y. Lai, Z.-X. Huang, L.-H. Peng,* A. Boudrioua, and A.-H. Kung, "Upconversion blue laser by intracavity frequency self-doubling of periodically poled lithium tantalate parametric oscillator", Opt. Lett. 35, 160-162 (2010). (IF 3.059)

S. C. Pei, T. S. Ho, T. M. Tai, L. M. Lee, J. C. Chen, A. H. Kung, F. J. Kao and S. L. Huang*, "Drawing of single-crystal and glass-clad lithium tantalate fibers by the laser-heated pedestal growth method", J. Appl. Cryst. 43, 48-52 (2010). (IF 3.018)

T. Trickl*, A.H. Kung, and Y.T. Lee, "A cold pulsed source of hydrogen and hydrogen clusters: development and extreme-ultraviolet studies", Appl. Phys. B 101, 321-335 (2010). (IF 1.992)

Han-Sung Chan, Zhi-Ming Hsieh, Wei-Hong Liang, A. H. Kung, Chao-Kuei Lee, Chien-Jen Lai, Ru-Pin Pan, Lung-Han Peng, "Synthesis and Measurement of Ultrafast Waveforms from Five Discrete Optical Harmonics," Science 331, 1165-1168 (2011) (10.1126/science.1198397). (IF 29.747)

Shan-Chuang Pei, Tuan-Shu Ho, Chien-Chung Tsai, Ting-Hao Chen, Yi Ho, Pi-Ling Huang, A. H. Kung, and Sheng-Lung Huang*, "Non-invasive characterization of the domain boundary and structure properties of periodically poled ferroelectrics," Opt. Exp. 19, 7153-7160 (2011). (IF 3.278)

B. Patents

A. H. Kung, "Photoacoustic ozone detector", U.S. patent No. 7,069,769, issued July 4, 2006. and ROC patent no. I 265288, issued Nov 1, 2006.

A. H. Kung, "Narrow bandwidth high repetition rate optical parametric oscillator," ROC patent issued, July 2006.

Andreas Miklos, Judith Angster, Klaus Breuer, Klaus Sedlbauer, and A. H. Kung, "An acoustic open high-frequency photoacoustic detector with optical multiducts for free-field measurements of trace gases," German/EU patent number 06754567.3-1234 PCT/EP2006006131, issued June 26, 2006.

A. H. Kung, Shining Zhu, Shih-Yu Tu, and Zhida Gao, "High repetition rate visible optical parametric oscillator," US patent no. 7,298,545 B2 issued Nov 20, 2007 and ROC patent applications filed in 2006.

A. H. Kung, Zhida Gao, Shih-Yu Tu, and Zhining Zhu, "Laser display radiation source and method," ROC patent no. I 929050 issued Jan 1, 2008.

A. H. Kung, Tse-Luen Wee, Shu Wei Huang, "Controlling pulses in optical microscopy," U.S. patent no, 7,480,045 B2 issued Jan. 20, 2009.

A. H. Kung, Tse-Luen Wee, Shu Wei Huang, "Nanosecond laser multiphoton scanning microscopy," R.O.C. patent issued in 2010.

C. Books and Conference Proceedings:

S.-Y. Tu, A. H. Kung, Z. D. Gao, and S. N. Zhu, “Efficient all-solid-state optical parametric oscillator for the visible based on periodically-poled stoichiometric lithium tantalite”, paper MB-23, OSA Advanced Solid State Photonics Topical Meeting, Incline Village, CA, Jan 29-Feb 1, 2006.

Tse-Luen Wee, Shu Wei Huang, and A. H. Kung, “Nanosecond Laser Multiphoton Scanning Fluorescence Microscopy”, paper CWA-1, Conference on Lasers and Electro-optics, Long Beach, CA. May 21-26, 2006.

Shih-Yu Tu, Zhida Gao, Shining Zhu, A. H. Kung, Sunao Kurimura, and Keiji Mitamura, “A Room Temperature Pulsed Visible OPO with 1 Watt Output Based on Periodically-poled MgO Doped Stoichiometric LiTaO₃”, paper CML-1, Conference on Lasers and Electro-optics, Long Beach, CA. May 21-26, 2006.

A. H. Kung, Wei-Jen Chen, and Shu Wei Huang, “70,000 cm⁻¹ Wide Raman Sideband Spectrum Generated by Vibrational Molecular Modulation in Room Temperature H₂”, paper QFE-2, Quantum Electronics and Laser Science Conference, Long Beach, CA. May 21-26, 2006.

Wei-Jen Chen and A. H. Kung, “A Tunable Source from the Visible to Deep Ultraviolet Generated by Molecular Modulation in Room Temperature Hydrogen”, paper QFE-3, Quantum Electronics and Laser Science Conference, Long Beach, CA. May 21-26, 2006.

Zhida Gao, Shih-Yu Tu, Shining Zhu, and A. H. Kung, “A monolithic Red-Green-Blue laser projection source based on PPSLT”, postdeadline paper CPDA3, Conference on Lasers and Electro-optics, Long Beach, CA. May 21-26, 2006.

A. H. Kung, Wei-Jan Chen, and Shu Wei Huang, ”Molecular modulation in room temperature H₂ for attosecond pulse generation”, paper AMO2-01, OCPA5, Taipei, Taiwan, June 26-30, 2006.(invited)

Shih-Yu Tu, A. H. Kung, Zhida Gao, Shining Zhu, Sunao Kurimura, and Keiji Kitamura, “Green pumped OPO with a novel PPMgSLT crystal operated at near room temperature”, paper CO-07, OPT 2006, NTHU, Hsinchu, Taiwan, Dec 15, 2006.

A. H. Kung, “Single cycle optical pulses with constant carrier envelope phase”, Workshop on Physics of Quantum Electronics, Snowbird, Utah, Jan 2-6, 2007. (invited)

A. H. Kung, “Single cycle optical pulse generation”, Chinese Physical Society Annual Meeting, National Central University, Chung-Li, Taiwan 2007. (invited)

A. H. Kung, “Ferroelectric photonic structures: characterization and device demonstration”, paper

CFN1, Conference on Lasers and Electro-optics, Baltimore, MD, May 6-11, 2007. (invited)

Shih-Yu Tu, A. H. Kung, Sunao Kurimura, Kenji Kitamura, and Takeshi Ikegami, "Broadly tunable mW level uv light generated by intracavity SFG in a compact high Q PPMgSLT OPO", paper CFN4, Conference on Lasers and Electro-optics, Baltimore, MD, May 6-11, 2007.

Ta-Min Tai, Shan-Chuang Pei, Li-Min Lee, Sheng-Lung Huang, and A. H. Kung, "Fabrication of PPLT crystal fiber by the method of laser heated pedestal growth", paper JTUA117, Conference on Lasers and Electro-optics, Baltimore, MD, May 6-11, 2007.

Shan-Chuang Pei, Li-Min Lee, Der-Fong Lin, Mon-Chang Tsai, De-Hao Sun, Sheng-Lung Huang, and A. H. Kung, "Tunable blue-green light source by self-cascaded $\chi^{(2)}$ nonlinearity in ZnO:PPLN crystal fiber", paper CThC4, Conference on Lasers and Electro-optics, Baltimore, MD, May 6-11, 2007.

Wei-Jan Chen, Zhi-Ming Hsieh, Shu Wei Huang, Hao-Yu Su, and A. H. Kung, "Generation of single cycle optical pulses with a constant carrier envelope phase", poster paper 19, 2007 International Conference on Laser Spectroscopy, Telluride, CO, USA, June 24-29, 2007.

Wei-Jan Chen, Zhi-Ming Hsieh, Shu Wei, Huang, Hao-Yuh Su, and A. H. Kung, "Generation of single cycle optical pulses with a constant carrier envelope phase", paper ThA4, 2007 OSA Topical Meeting on Nonlinear Optics, Kona, Hawaii, July 29-August 3, 2007.

A. H. Kung, "Novel Optical Parametric Devices based on Periodically-Poled Ferroelectric Crystals," Conference on Lasers and Electro-Optics – Pacific Rim, Seoul, Korea, August 26-30, 2007.(invited)

A. H. Kung, "PPLN and PPLT optical parametric devices", Second Cross-strait Workshop on Periodically-poled materials, Nanjing University, September 12-16, 2007.(invited)

Lung-Han Peng, Han-Ming Wu, A. H. Kung, and Chih-Ming Lai, "Fabrication and Characterization of self-assembled ferroelectric linear and nonlinear photonic crystals: GaN and LiNbO₃", pp21-51, Chapter 2 in ""Micro/nano engineering and characterization of ferroelectric crystals for applications in photonics", editors Pietro Ferraro, Simonetta Grilli and Paolo De Natale, Springer Verlag Germany, 2007.

A. H. Kung, "Progress in Single- and Sub-Single-Cycle Optical Pulse Generated by the Raman Technique", Workshop on Physics of Quantum Electronics, Snowbird, Utah, Jan 6-10, 2008.(invited)

Shih-Yu Tu and A. H. Kung, "A red-green-blue coherent laser source based on quasi-phase-matched cascaded wavelength conversion in periodically-poled MgSLT," Paper 6875 OM, Symposium on Nonlinear Frequency Generation and Conversion, SPIE Photonics West Symposia, San Jose, CA. Jan 19-24, 2008.

Shan-Chuang Pei, De-Hao Sun, Chia-Hsiang Hsu, Tuan-Shu Ho, Fu-Jen Kao, Sheng-Lung Huang, A. H. Kung, "Second-Harmonic Generation in Periodically Poled Lithium Tantalate Crystal Fiber," paper CWG5, 2008 Conference on Lasers and Electro Optics, San Jose, CA, May 4-9 2008.

Hsi-Chun Liu, A. H. Kung, "Optical Parametric Generation and Oscillation in a Two-Dimensional Nonlinear Photonic Crystal," paper CThGG1, 2008 Conference on Lasers and Electro-Optics, San Jose, CA, May 4-9 2008.

Chien-Jen Lai, Lung-Han Peng, A. H. Kung, "Optical Interference in Nonlinear Photonic Crystals," paper CThGG3, 2008 Conference on Lasers and Electro-Optics, San Jose, CA, May 4-9 2008.

A. H. Kung, "Absolute control of the carrier-envelope phase of single-cycle pulses", Workshop on Physics of Quantum Electronics, Snowbird, Utah, Jan 4-9, 2009.(invited)

Zhi-Ming Hsieh, Chien-Jen Lai, Wei-Hong Liang, Tsung-Ta Tang, Wei-Jan Chen, Ru-Pin Pan, Ci-Ling Pan, A. H. Kung, "Pulse Shaper Assisted Characterization of Single-Cycle Optical Pulses," paper CMLL3, Conference on Lasers and Electro-Optics, Baltimore, MD, May 31-June 5, 2009.

Chien-Jen Lai, Wei-Ting Chen, A. H. Kung, "Random-Phase-Matching in Periodically-Poled Material," paper CThD2, Conference on Lasers and Electro-Optics, Baltimore, MD, May 31-June 5, 2009.

I-Ning Hu, Ying-Yao Lai, Chun-Yin Li, Lung-Han Peng, Andy Kung, "Efficient Second Harmonic Blue Generation from Self-Doubling of Quasi-Phase-Matched PPLT Parametric Oscillator," paper CThZ4, Conference on Lasers and Electro-Optics, Baltimore, MD, May 31-June 5, 2009.

Zhi-Ming Hsieh, Chien-Jen Lai, Han-Sung Chan, Sih-Ying Wu, Chao-Kuei Lee, Wei-Jan Chen, Ci-Ling Pan, Fu-Goul Yee, A. H. Kung, "Full Control of the Carrier-Envelope Phase of Raman-Generated Single-Cycle Waveforms," paper CPDA10, Conference on Lasers and Electro-Optics, Baltimore, MD, May 31-June 5, 2009.

Zhi-Ming Hsieh, Chien-Jen Lai, Han-Sung Chan, Sih-Ying Wu, Chao-Kuei Lee, Wei-Jan Chen, Ci-Ling Pan, Fu-Goul Yee, and A. H. Kung, "Controlling the Carrier-Envelope Phase of Single-Cycle Waveforms Synthesized from Raman Generated Frequency Combs," paper F16, 2009 International Conference on Attosecond Physics, Manhattan, Kansas, USA, July 28 – August 2, 2009.

A. H. Kung, "Synthesis and Carrier-Envelope Phase Control of Single-Cycle Optical Pulses," paper TuF1-2, CLEO/Pacific Rim 2009, Shanghai, Aug. 30 – Sept. 3, 2009 (invited).

Wei-Chun Hsu, Zhi-Ming Hsieh, Ying-Yao Lai, Chien-Jen Lai, Wei-Ting Chen, Lung-Han Peng, Ci-Ling Pan, and A. H. Kung, "Generation of Octave-Spanning Multiple Harmonics for Ultrafast

Waveform Synthesis,” paper ThB3-4, CLEO/Pacific Rim 2009, Shanghai, Aug. 30 – Sept. 3, 2009.

Wei-Hong Liang, Zhi-Ming Hsieh, Tsung-Ta Tang, A.H. Kung, Ci-Ling Pan, Ru-Pin Pan, Peichen Yu, ” Spatial Light Modulator for Pulse-Shaping of Single-Cycle Optical Pulses,” paper MF2-4, CLEO/Pacific Rim 2009, Shanghai, Aug. 30 – Sept. 3, 2009.

Zhi-Ming Hsieh, Chien-Jen Lai, Han-Sung Chan, Sih-Ying Wu, Chao-Kuei Lee, Wei-Jan Chen, Ci-Ling Pan, Fu-Goul Yee, and A. H. Kung, “Carrier-Envelope-Phase Control of Ultrashort Periodic Pulses Synthesized from Raman Generated Combs,” paper TuP3-06, CLEO/Pacific Rim 2009, Shanghai, Aug. 30 – Sept. 3, 2009.

Andy Kung, “Waveform Synthesis using Frequency Combs Generated by Molecular Modulation,” 40th Winter Colloquium on Physics of Quantum Electronics, Snowbird, Utah, USA, Jan 3-7, 2010. (Plenary)

Zhi-Ming Hsieh and A. H. Kung, ,“ Enhanced generation of intense anti-Stokes Raman comb for subfemtosecond waveform synthesis,” 2010 Asian Pacific Conference in Ultrafast Phenomena, Taipei, Taiwan, Jan. 11-13, 2010.

Zhi-Ming Hsieh^{a,b} , Chien-Jen Lai^a , Wei-Hong Liang^c ,Tsung-Ta Tang^c , Wei-Jan Chen^a , Ru-Pin Pan^d , Ci-Ling Pan^{c,e} , and A. H. Kung, “Pulse Shaper Assisted Characterization of Single-cycle Optical Pulses,” 2010 Asian Pacific Conference in Ultrafast Phenomena, Taipei, Taiwan, Jan. 11-13, 2010.

Han-Sung Chan^a, Zhi-Ming Hsieh^b, Chien-Jen Lai^c Chao-Kuei Lee^d, Wei-Jan Chen^e, Ci-Ling Pan^e, Fu-Goul Yee^b, A. H. Kung, “Carrier-envelope phase control of Raman generated ultrashort periodic waveform,” 2010 Asian Pacific Conference in Ultrafast Phenomena, Taipei, Taiwan, Jan. 11-13, 2010.

A. H. Kung, “Subfemtosecond and Attosecond Pulse Generation,” 2010 Photonics West Conference on Ultrafast Phenomena on Semiconductors and Nanostructure Materials XIV Jan 24-29, 2010, San Francisco, CA USA. (invited)

Andy Kung, “Subfemtosecond and Attosecond Pulse Generation, “ Annual Meeting of the Physical Society of the Republic of China, Feb , 2010. (invited)

Shan-Chuang Pei, Tuan-Shu Ho, Chien-Chung Tsai, Ting-Hao Chen, A.H. Kung, Sheng-Lung Huang, “Non-Invasive Study of Domain Boundary in Periodically Poled Ferroelectrics Using Ultrahigh Resolution Optical Coherence Tomography,” Paper CMG6, Proceeding of the Conference on Lasers and Electro-Optics, San Jose, CA, USA, May 16-21, 2010.

Han-Sung Chan, Zhi-Ming Hsieh, Wei-Hong Liang, Andy Kung, Chao-Kuei Lee, Ru-Pin Pan, Lung-Han Peng, “Synthesis of Attosecond WaveformsUsing Raman-GeneratedFrequency Combs,”

Paper CWJ6, Proceeding of the Conference on Lasers and Electro Optics, San Jose, CA, USA, May 16-21, 2010.

Wei-Chun Hsu, Ying-Yao Lai, Chien-Jen Lai, Lung-Han Peng, Ci-Ling Pan, Andy Kung, "Multi-Octave-Spanning Laser Harmonics for Ultrafast Waveform Synthesis," Paper CTHZ3, Proceeding of the Conference on Lasers and Electro Optics, San Jose, CA, USA, May 16-21, 2010.

Han-Sung Chan, Zhi-Ming Hsieh, Wei-Hong Liang, A. H. Kung, Chao-Kuei Lee, Ru-Pin Pan, Lung-Han Peng, "Synthesis Of Subfemtosecond Periodic Waveforms", Poster ME24, 17th International Conference on Ultrafast Phenomena (UP), Snowmass, CO, USA, July 18-23, 2010

Andy Kung, "Multiple Harmonics Generation: Molecular Modulation vs Cascaded Generation by QPM," 41st Winter Colloquium on Physics of Quantum Electronics, Snowbird, Utah, USA, Jan 2-7, 2011. (Invited)

Andy Kung, "Synthesis and Measurement of Subfemtosecond Optical Waveforms," 10th Korean Conference on Advanced Lasers and Their Applications, Jeju Island, May 12-14, 2011. (plenary)

H.-S. Chan, Z.-M. Hsieh, W.-H. Liang, A. H. Kung*, C.-K. Lee, C.-J. Lai, R.-P. Pan and L.-H. Peng, "Synthesis and Measurement of Sub-femtosecond Subcycle Periodic Pulses," ATTO3, 3rd International Conference on Attosecond Physics, Hokkaido, Japan, July, 2011.

C. Invited Talks (2006-now)

A. H. Kung, Ferroelectric micro- and nano-photonic structures: fabrication and application, the 3rd Taiwan-US Air Force Nanoscience Initiative Workshop, Hualien, Taiwan, Feb 9-11, 2006.

A. H. Kung, An affordable multiphoton microscope, Nano/Bio-Photonics Conference, NCKU, Tainan, March 30, 2006.

A. H. Kung, Molecular modulation: making attosecond (subfemtosecond) pulses from CW lasers, Institute of Electro-Optical Technologies, National Tsing-Hua University, March 31, 2006.

A. H. Kung, Sensitive trace gas detection, Research Center on Environmental Change, Academia Sinica, May 10, 2006.

A. H. Kung, Molecular modulation in room temperature H₂ for attosecond pulse generation, OCPA Frontiers in Physics Conference, Taipei, Taiwan, June 28, 2006.

A. H. Kung, Single cycle optical pulse generation, AMO Summer School, NTHU, August 21-24, 2006.

A. H. Kung, Narrowband high rep rate PPLN OPO and its spectroscopic applications, Spectra Physics Lasers, Inc., Mountain View, CA. USA, September 14, 2006.

A. H. Kung, Attosecond single cycle optical pulse generation, Shen group meeting, Physics Department, UC Berkeley, September 15, 2006.

A. H. Kung, High rep rate pulsed QPM OPOs, Stanford Photonics Research Center Annual Symposium, Stanford University, Stanford, CA> September 20, 2006.

A. H. Kung, Single cycle optical pulse generation, Workshop on Laser Physics, Zhangjiajie, Hunan, China, Oct. 20-26, 2006.

A. H. Kung, Optical parametric oscillators and their applications, Physics Department, Nanjing University, China, Oct. 26, 2006.

A. H. Kung, Single cycle optical pulse generation, C. L. Pan group seminar, NCTU, Hsinchu, Taiwan, Nov. 10, 2006.

A. H. Kung and Lung-Han Peng, “Ferroelectric Micro- and Nanophotonic Structures and Devices”, the 4th Air-Force- Taiwan Nanoscience Initiative Workshop, Houston, Texas, Feb 8-9, 2007.

A. H. Kung, “Single cycle optical pulses with constant carrier envelope phase”, Workshop on Physics of Quantum Electronics, Snowbird, Utah, Jan 2-6, 2007.

A. H. Kung, “Single cycle optical pulse generation”, Chinese Physical Society Annual Meeting, National Central University, Chung-Li, Taiwan 2007.

A. H. Kung, “Ferroelectric photonic structures: characterization and device demonstration”, paper CFN1, Conference on Lasers and Electro-optics, Baltimore, MD, May 6-11, 2007.

A. H. Kung, “Novel Optical Parametric Devices based on Periodically-Poled Ferroelectric Crystals,” Conference on Lasers and Electro-Optics – Pacific Rim, Seoul, Korea, August 26-30, 2007.

A. H. Kung, “PPLN and PPLT optical parametric devices”, Second Cross-strait Workshop on Periodically-poled materials, Nanjing University, September 12-16, 2007.

A. H. Kung, “Progress in Single- and Sub-Single-Cycle Optical Pulse Generated by the Raman Technique”, Workshop on Physics of Quantum Electronics, Snowbird, Utah, Jan 6-10, 2008.

A. H. Kung, “Frontiers in Optical Physics: attosecond science and technology, an overview”, Annual Meeting of the ROC Physics Society, Jan 29, 2008.

A. H. Kung, "Frontiers in Optical Physics: advancing toward attosecond science and technology", Physics Colloquium, Physics Department, National Cheng Kung University, April 11, 2008.

A. H. Kung, "Frontiers in Optical Physics: advancing toward attosecond science and technology", Physics Colloquium, Institute of Physics, Academia Sinica, April 16, 2008.

A. H. Kung, "Single cycle pulse train generation", Interaction of light with matter, a new frontier: Symposium to celebrate the 10th anniversary of the College of Science and Technology, Temple University, Nov 19, 2008.

A. H. Kung, "Synthesis of single cycle pulses", Electro-optics colloquium, Graduate Institute of Photonics and Optoelectronics, National Taiwan University, Nov 28, 2008.

A. H. Kung, "Synthesis of single cycle pulses", 14th International Workshop on Laser Science, Guangzhou, China, Dec 5-7, 2008.

A. H. Kung, "Absolute control of the carrier-envelope phase of single-cycle pulses", Workshop on Physics of Quantum Electronics, Snowbird, Utah, Jan 4-9, 2009.

A. H. Kung, "Synthesis and control of single cycle pulses for quantum control and attosecond science", Physics Department Colloquium, National Tsing-Hua University, April 8, 2009.

A. H. Kung, "Synthesis and carrier-envelope phase control of Raman-generated single cycle waveforms", CLEO/Pacific Rim, Shanghai, China, September 1, 2009.

A. H. Kung, "Optical Waveform Generator", Institute of Photonics Technologies, National Tsing Hua University, Oct. 2, 2009.

A. H. Kung, "Optical Waveform Generator", Department of Electronics Engineering, National Chiao Tung Univeristy, Nov 2, 2009.

A. H. Kung, "Waveform synthesis from Raman-generated frequency comb", 40th Workshop on Physics of Quantum Electronics, Snowbird, Utah, Jan 3-8, 2010.(plenary)

A. H. Kung, "Attosecond waveform synthesis", SPIE Photonics West Conferences, Jan 24-30, 2010.

Andy Kung, "Multiple Harmonics Generation: Molecular Modulation vs Cascaded Generation by QPM," 41st Winter Colloquium on Physics of Quantum Electronics, Snowbird, Utah, USA, Jan 2-7, 2011.

Andy Kung, "Synthesis and Measurement of Subfemtosecond Optical Waveforms," 10th Korean

Conference on Advanced Lasers and Their Applications, Jeju Island, May 12-14, 2011. (plenary)

七、其他(已接受論文之證明文件)