

## CURRICULUM VITAE

**Dr. Alexander E. Kaplan**

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Research Field: *Lasers, Quantum Electronics, and Nonlinear Optics*

Education: 1967 - *Ph.D. in Physics&Math.*, ex-USSR Acad. of Sciences, Inst. of Radio-Eng.&Electronics, Moscow, and Gorky St. Univ., ex-USSR.  
1955 - 1961 - *M.S. Degree in Physics*, Moscow Physical-Technical Inst. (Moscow Inst. of Physics & Technology), Moscow, ex-USSR.

Biography Listing: "American Men and Women of Science", 1980 and later Edns  
"Men of Achievement", XIII Edition (London, UK), 1989 and later  
"Intern. Directory of Disting. Leadership", Am. Bio. Inst., 1989 and later  
"Who's Who in Sci.&Eng.", Marquis W's/W in America, 1992 and later  
"Who's Who in American Education", Marquis W's/W in America  
"Who's Who in America", Marquis, 1996 and later  
"Who's Who in the World", Marquis 1998 and later

Employment:

Summer, 07 *Intern. Visiting Professor, Inst. of Advanced Energy, Kyoto Univ.*, Kyoto, Japan  
Jan. 87 - present *Professor, Electr. & Comp. Eng. Dept., The Johns Hopkins University*, Baltimore, MD 21218.  
Sept. 96 - Jan. 97 *Alexander von Humboldt Prof.*, on sabbatical leave at *the Univ. of Ulm, Quantum Phys. Dept.*, Ulm, D-89069 Germany  
Sept. 82 - Dec. 86 *Professor, School of Electr. Eng., Purdue Univ.*, W. Lafayette, IN 47907.  
Dec. 79 - Aug. 82 *Research Staff Member, Mass. Inst. of Technology*, F. Bitter Natl. Magnet Lab., Cambridge, MA 02139.  
June - Sept. 81 *Guest Scientist, Max-Planck-Inst. für Quantenopt.*, 8046 Garching, Germany  
1963 - Aug. 1979 *Research Staff Member*, various Institutes of *the ex-USSR Academy of Sciences*, Moscow, ex-USSR.  
1961 - 1963 *Research Scientist*, Radio R&D Lab., Moscow County, ex-USSR.

Consulting: Bell Labs, Holmdel, N.J. (1980-81)  
Los Alamos Lab., Los Alamos, NM (1981)  
Honeywell Res. Center, Minneapolis, MN (1982)

Publications: Co-author of *two monographs*:  
"Resonant Nonlinear Interaction of Light with Matter," Springer, 1989 (expanded&updated translation from a Russian edn. of 1976).  
"Parametric Oscillators and Frequency Dividers," 1966 ("Sov. Radio," Moscow, in Russian). About 370 technical publications; see list attached.

Teaching: EE 420, Electronic & Optical Properties of Materials (1992)  
EE 482, Introduction to Lasers (1993; 95; 97-2002)  
EE 725, Quantum Electronics (1993; 95; 98)  
EE 726, Nonlinear Optics (1984; 86; 89-91, 1994; 98; 04; 05).

EE 720, Res. Sem. Sld. St., QE, Nonl. Opt. (1988-1995, 99, 2002, 06, 07)  
EE 775, Theory of Nonlinear Systems (1983)  
EE 414, Fundamentals of Optical Electronics (1983)  
EE 410, Fiberoptics and Photonics (1996; 97)  
EE 457, Basics of quantum mechanics for engineers (1998-2007)

Supervision: Six students obtained M.S. degrees in EE (1985-98)  
and advising Three students obtained Ph.D. degrees in EE (1987 and 1990)  
Support & supervision of a post-doc (five post-docs from 1987)

Hosting Intern. Prof. B. Akanaev of Kazakh Natl. Univ., Kazakhstan, Fulbright Scholar;  
Guest Scientists: Prof. A. Lago, Univ. Federal de S. Catarina, Brazil; Dr. I. Marzoli, Italy.

Citation Rate: About 150/year citations in 1990-2006 by other workers, according to "Science Citation Index"

Funding : Principal Investigator in the projects funded by AFOSR and other agencies;  
total personal funding within last 27 years exceeded \$4,800,000.

Honors & Awards : *Fellow of the Opt. Soc. of Am.* since 1984  
1996, *Alexander von Humboldt Award for senior USA scientists* by the AvH  
Foundation of Germany  
*2005 Max Born Award of Optical Society of America*

Activities as a Referee: Phys. Rev. Lett. Phys. Rev. Applied Optics  
Optics Letter J. Appl. Phys. Opt. Commun.  
Appl. Phys. Letters J. Opt. Soc. Am. Phys. Lett.  
IEEE J. Quant. Electron.

Other Activities: Proposal reviewer for NSF, Army Basic Res. Comm., Natl. Res. Counsl,  
DoE, Intl. Sc. Found. (Soros Fund), and Bintl. Sc. Fnd. (Israel+US)

*Panel member* and *Program Committee member* at technical conferences in  
the field; *member* of PR Committee of OSA  
*Invited and Keynote Speaker* at various technical conferences.  
*Organizer and Presider* of a workshop on "*Quantum optical phenomena with  
single particles*" at the 1986 Annual Meeting of OSA  
*Guest Editor* for Spec. Issue of IEEE J. Quant. Electr. (July'88) on "*Quant.  
and Nonl. Optics of Single Electrons, Atoms, and Ions*".  
*Member* of a Natl. Panel on "Math. for Material Sciences", 1991-92.  
*Member* of ASAT US-USSR Laser Verification Meeting, June'91.  
*Organizer&coordinator* of computer professional network INFO-RUSS (1500  
subs.) for academic community of emigres from ex-USSR (1991-2000)  
*Organizer&coordinator* of the Web-list of International Nonlinear Optics  
research & academic community (350 links).  
*Edit. Board Member* for "J. of Nonlinear Optical Physics & Materials".  
*Edit. Board Member* for Int. Journal "Optics Communications" (1997-99)

Invited Seminars: More than 140 invited lectures and seminars within the last 25 years at various  
Universities and govern. & industrial labs in the USA (including MIT,  
Princeton, Bell Labs, IBM, GTE and others) and abroad (Canada, France,  
Germany, Austria, Italy, Israel, Spain, England, Belgium, and Russia).

Profess. Societies Membership: Optical Society of America (*Fellow*)  
The American Physical Society (Member)

Citizenship: US citizen. (Born: 1938 in the ex-USSR; immigrated to the US in 1979).

Languages: English, Russian.

### Publications of A. E. Kaplan

#### Serial (Archive) Journal Articles

*Work done in the ex-USSR* (all the Russian journals in this subsection are referred to by the titles of their *English cover-to-cover translations published in the USA*):

- [1] A. E. Kaplan, "Subharmonic oscillations in a parametric generator with nonlinear capacitance," *Radio Engineering and Electronic Physics* 8:1340-1347 (1963).
- [2] A. E. Kaplan, "Anomalous n-th order resonance in single-circuit having a p-n junction with nonlinear capacitance," *Radio Engineering and Electronic Physics* 9:1424-1425 (1964).
- [3] A. E. Kaplan, "On reflectivity of metallic films at microwave and radio frequencies," *Radio Engineering and Electronic Physics* 9:1476-1481 (1964).
- [4] A. E. Kaplan, "Contribution to the theory of parametric generator of subharmonics up to n-th order, transient processes," *Radio Eng. and Electronic Physics*, 11:1214-1221 (1966).
- [5] A. E. Kaplan, "Phase fluctuations in a two-circuit parametric generator of subharmonics," *Radio Engineering and Electronic Physics* 11:1354-1359 (1966).
- [6] A. E. Kaplan, Comments on "Transmission of electromagnetic waves through thin silver films," by F. A., Korolev and V. I. Gridnev, *Radio Engineering and Electronic Physics* 11:1377-1378 (1966).
- [7] M. E. Zhabotinskii, A. E. Kaplan and Yu. P. Rudnitskii, "The influence of absorption from the metastable level of a sensitizer on the choice of laser pumping mode," *Radiophysics and Quantum Electronics* 11:666-669 (1968).
- [8] A. E. Kaplan, "On generation of high-order subharmonics in the optical range," *Radiophysics and Quantum Electronics* 11:900 (1968).
- [9] A. E. Kaplan, "Bending of trajectories of asymmetrical light beam in nonlinear media," *JETP Letters* 9:33-36 (1969).
- [10] A. E. Kaplan, "'External' self-focusing of light by nonlinear layer," *Radiophysics and Quantum Electronics* 12:692-696 (1969).
- [11] V. S. Butylkin, A. E. Kaplan and Yu. G. Khronopulo, "A possibility of observing self-focusing due to the stimulated Raman scattering," *Radiophysics and Quantum Electronics* 12:1395-1398 (1969).
- [12] V. S. Butylkin, A. E. Kaplan and Yu. G. Khronopulo, "Nonlinear polarizability in resonant interactions of an electromagnetic field with matter," *Sov. Physics JETP* 32:501-507 (1971).
- [13] V. S. Butylkin, A. E. Kaplan, and Yu. G. Khronopulo, "Some features of self-action of light in absorbing media and conditions for observing self-focusing due to resonant absorption," *Sov. Physics JETP* 34:276-283 (1972).
- [14] V. S. Butylkin, A. E. Kaplan, and Yu. G. Khronopulo, "Self-action of light arising from stimulated Raman scattering," *Optics and Spectroscopy*, 31:120-123 (1972).
- [15] A. E. Kaplan, "Exact theory of relaxation of two-level systems in a strong nonmonochromatic field," *Sov. Physics JETP* 38:705-711 (1974).
- [16] A. E. Kaplan, "Dynamics of a two-level system in a strong resonant field with variable frequency and amplitude," *Sov. Phys. JETP* 41:409-413 (1975).
- [17] A. E. Kaplan, "Two-level system in the field of high-power pulse of arbitrary duration," *Sov. J. of Quantum Electronics* 6:728-730 (1976).
- [18] A. E. Kaplan, "Hysteresis reflection and refraction by nonlinear boundary - a new class of effects in nonlinear optics," *JETP Lett.* 24:114-119 (1976).
- [19] A. E. Kaplan, "Theory of hysteresis reflection and refraction of light by a boundary of a nonlinear medium," *Sov. Physics JETP* 45:896-905 (1977).

- [20] A. E. Kaplan, "Criterion of existence of longitudinally inhomogeneous traveling waves in nonlinear electrodynamics," *Sov. J. of Quantum Electronics*, 8:95-97 (1978).
- [21] A. E. Kaplan, "Longitudinally inhomogeneous traveling waves and their role in nonlinear reflection and refraction of light," *Radiophysics and Quantum Electronics* 22: 229-241 (1979).

*Work done in the USA:*

- [22] A. E. Kaplan, "Bistable reflection of light by an electro-optically driven interface," *Appl. Phys. Lett.* 38:67-69 (1981).
- [23] A. E. Kaplan, "Conditions of excitation of new waves (LITW) at nonlinear interfaces and diagram of wave states of the system," *IEEE J. Quant. Electr.*, QE - 17:336-340 (1981).
- [24] J. E. Bjorkholm, P. W. Smith, W. J. Tomlinson (Bell Labs.) and A. E. Kaplan (MIT), "Optical bistability based on self-focusing," *Optics Letters*, 6:345-347 (1981).
- [25] A. E. Kaplan, "Optical bistability due to mutual self-action of counterpropagating light beams," *Optics Letters*, 6:360-362 (1981).
- [26] A. E. Kaplan, (MIT) and P. Meystre (Max-Planck Institute, Germany), "Enhancement of the Sagnac effect due to nonlinearly induced nonreciprocity," *Optics Letters*, 6:590-592 (1981).
- [27] A. E. Kaplan and P. Meystre, "Directionally asymmetrical bistability in a symmetrically pumped nonlinear ring interferometer," *Optics Communications*, 40:229-231 (1982).
- [28] A. E. Kaplan, "Hysteresis in cyclotron resonance based on weak-relativistic mass-effect of the electron," *Phys. Rev. Lett.*, 48:138-141 (1982).
- [29] P. W. Smith, W. J. Tomlinson, P. J. Maloney (Bell Labs) and A. E. Kaplan (MIT), "Optical bistability at an electro-optical interface," *Optics Letters*, 7:57-59 (1982).
- [30] W. J. Tomlinson, J. P. Gordon, P. W. Smith (Bell Labs.) and A. E. Kaplan (MIT), "Reflection of a Gaussian beam at nonlinear interfaces," *Applied Optics*, 21:2041-2051 (1982).
- [31] A. E. Kaplan, "Electro-optic enhancement of the Sagnac effect in ring resonator and related effect of directional bistability," *Appl. Phys. Lett.* 42: 479-481 (1983).
- [32] A. Elci and A. E. Kaplan, "Bistable Cyclotron Resonance," *Physics Letters*, 97A, 305-308 (1983).
- [33] A. E. Kaplan, "Light-induced nonreciprocity, field invariants and nonlinear eigen-polarizations," *Optics Letters*, 8: 560-562 (1983).
- [34] A. E. Kaplan and A. Elci, "Hysteretic (Bistable) Cyclotron Resonance in Semiconductors," *Phys. Rev. B*, 29: 820-825 (1984).
- [35] A. E. Kaplan and S. Datta, "Extreme-ultraviolet and X-ray Emission and Amplification by Non-relativistic Beams Traversing a Superlattice," *Applied Physics Letters*, 44: 661-663 (1984).
- [36] A. E. Kaplan and S. Datta, "Soft X-ray Emission Excited by Electron Beams in a Superlattices," *J. Luminescence*, 31: 690-692 (1984).
- [37] S. Datta and A. E. Kaplan, "Quantum Theory of Spontaneous and Stimulated Resonant Transition Radiation," *Phys. Rev. A.*, 31, 790-796 (1985).
- [38] A. E. Kaplan and C. T. Law, "Isolas in four-wave mixing optical bistability," *IEEE J. Quant. Electr.*, QE - 21, 1529-1537 (1985).
- [39] A. E. Kaplan, "Multistable self-trapping of light and multistable soliton pulse propagation," *IEEE J. Quant. Electr.*, QE - 21, 1538-1543 (1985).
- [40] A. E. Kaplan, "Ultimate bistability: hysteretic resonance of a slightly-relativistic electron," *IEEE J. Quant. Electr.*, QE - 21, 1544-1549 (Sept. 1985).
- [41] A. E. Kaplan, "Bistable solitons," *Phys. Rev. Lett.* 55, 1291-1294 (1985).

- [42]\* A. E. Kaplan, "Hysteretic resonance of a slightly relativistic single electron," (\* *invited* paper), "Nature," 317, 476-477 (1985).
- [43] E. M. Wright, P. Meystre (Max-Planck-Inst. Quantenoptik, Germany), W. J. Firth (Heriott-Watt Univ., Scotland, U.K.), and A. E. Kaplan (Purdue Univ.), "Theory of the nonlinear Sagnac effect in a fiber-optic gyroscope," Phys. Rev. A 32, 2857-2863 (1985).
- [44] A. E. Kaplan, "Relativistic nonlinear optics of a single cyclotron electron," Phys. Rev. Lett. 56, 456-459 (1986).
- [45] D. R. Andersen, L. A. Kolodziejski, R. L. Gunsher, S. Datta, A. E. Kaplan (Purdue Univ.), and A. V. Nurmikko (Brown Univ.), "Nonlinear Excitonic Absorption in (Zn,Mn)Se Superlattices and ZnSe Films," Appl. Phys. Lett. 48; 1559-1561 (1986).
- [46] A. E. Kaplan, "Response to Comments by Enns and Rangnekar," Phys. Rev. Lett. 57, 779 (11 August, 1986).
- [47] R. H. Enns and S. S. Rangnekar (Simon Fraser Univ., Canada) and A. E. Kaplan (Purdue Univ.), "Robust Bistable Solitons of the Highly-nonlinear Schrödinger Equation," Phys. Rev. A., Rapid Communications 35, 466-469 (1987).
- [48] D. H. Auston (AT&T Bell Labs), T. K. Gustafson (NSF), A. E. Kaplan (Purdue Univ.), P. L. Kelley (MIT Lincoln Lab), and Y. R. Shen (Un. California, Berkeley), "Limits on nonlinear optical interaction", in review paper "Research on Nonlinear Optical materials: an assessment", Applied Optics, 26: 211-234 (1987).
- [49] A. E. Kaplan, "Optical high-order subharmonic excitation of free cyclotron electrons," Optics Letters, 12: 489-491 (1987).
- [50] F. Marquis, P. Meystre, E. M. Wright (OSC, Univ. Arizona), and A. E. Kaplan (Purdue Univ., JHU), "Dynamics of the optical Freedericksz transition" Phys. Rev. 36A, 875-887 (1987).
- [51] R. H. Enns, S. S. Rangnekar (Simon Fraser Univ.), and A. E. Kaplan (JHU), "Bistable soliton pulse propagation: stability aspects," Phys. Rev. 36A, 1270-1278 (1987).
- [52] A. E. Kaplan and Y. J. Ding, "Hysteretic three-photon cyclotron resonance in semiconductors," Optics Letters, 12: 687-689 (1987).
- [53] Y. J. Ding and A. E. Kaplan, "Isolas in the three-photon optical excitation of a single cyclotron electron," Optics Letters, 12, 699-701 (1987).
- [54] C. T. Law and A. E. Kaplan, "X-ray transition radiation in a solid-state superlattice: photon-absorption, electron scattering, and radiation optimization," Optics Letters, 12, 900-902 (1987).
- [55] G. A. Swartzlander and A. E. Kaplan, "Self-deflection of laser beams in a thin nonlinear film," J. of Am. Opt. Soc. B ("Optical Physics"), 5, 765-768 (1988).
- [56] A. E. Kaplan, "Bistable Optical Solitons," Journal de Physique, 49, C2, 69-74 (1988).
- [57] A. E. Kaplan and Y. J. Ding, "Hysteretic and multiphoton optical resonances of a single cyclotron electron," IEEE J. Quant. Electr., 24, 1470-1482 (1988).
- [58] Y. J. Ding and A. E. Kaplan, "High-order cyclo-Raman scattering of laser by a single electron," Phys. Rev. A, 38, 3109-3112 (1988).
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- [60] A. E. Kaplan, "Bistable solitons and their applications in nonlinear optics," Mathl. Comput. Modeling, 11, 106-111 (1988).
- [61] C. T. Law and A. E. Kaplan, "Dispersion-related multimode instabilities and self-sustained oscillations in nonlinear counterpropagating waves," Opt. Letters, 14, 734-736 (1989).
- [62] Y. J. Ding and A. E. Kaplan, "Dynamics and stability of hysteretic and multiphoton optical resonances of a single slightly-relativistic electron," J. Opt. Soc. Am. B., 6, 1299-1305 (1989).

- [63] G. A. Swartzlander, H. Yin, and A. E. Kaplan, "CW self-deflection effect in sodium vapor", *J. Opt. Soc. Am. B.*, **6**, 1317-1325 (1989).
- [64] S. De Nicola (Istituto di Cibernetica, Italy), A. E. Kaplan (J. Hopkins Un.), S. Martellucci, (Un. di Roma, Italy) P. Mormile, G. Pierattini (Ist. di Cib., Italy), and J. Quartieri (Un. di Roma, Italy), "Stable hysteretic reflection of light at a nonlinear interface", *Appl. Phys. B* **49**, 441-444 (1989).
- [65] Y. J. Ding and A. E. Kaplan, "Nonlinear magneto-optics of vacuum: second harmonic generation," *Phys. Rev. Lett.* **63**, 2725-2728 (1989).
- [66] D. R. Andersen, D. E. Hooton (U. of Iowa), G. A. Swartzlander (U. of Maryland), and A. E. Kaplan (JHU), "Direct measurements of the transverse velocity of dark spatial solitons", *Optics Letters* **15**: 783-785 (1990).
- [67] Y. J. Ding and A. E. Kaplan, "Reply to Raizen, Rosenstein, Ford, and Steel comments", *Phys. Rev. Lett.* **65**, 2746 (1990).
- [68] Y. J. Ding, C. L. Guo, G. A. Swartzlander Jr., J. B. Khurgin, and A. E. Kaplan, "Spectral Measurement of the Nonlinear Refractive Index in ZnSe Using Self-Bending of a Pulsed Laser Beam", *Opt. Lett.* **15**: 1431-1433 (1990).
- [69] C. T. Law and A. E. Kaplan, "Instabilities and amplification of counterpropagating waves in a Kerr nonlinear medium", *J. Opt. Soc. Am. B* **8**: 58-67 (1991).
- [70] G. A. Swartzlander (JHU), D. R. Andersen, J. J. Regan (U. of Iowa), H. Yin and A. E. Kaplan (JHU), "Spatial dark-soliton stripes and grids in self-defocusing materials", *Phys. Rev. Lett.* **66**: 1583-1585 (1991).
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- [72] C. L. Guo, Y. J. Ding, S. Li, J. B. Khurgin, C. T. Law, A. E. Kaplan, K.-K. Law, J. Stellato, and L. A. Coldren, "Strong excitonic nonlinearity in a *pin* diode incorporating narrow asymmetric coupled quantum wells," *Opt. Lett.* **16**: 949-951 (1991)
- [73] P. L. Shkolnikov and A. E. Kaplan, "On the feasibility of X-ray resonant nonlinear effects in plasmas", *Opt. Lett.* **16**: 1153-1155 (1991)
- [74] Y. J. Ding, C. L. Guo, S. Li, J. B. Khurgin, C. T. Law, A. E. Kaplan, K.-K. Law, J. Stellato, and L. A. Coldren, "Observation of anomalously large blue shift of the excitonic transition and optical bistability in narrow asymmetric coupled quantum wells," *Appl. Phys. Lett.*, **59**: 1025-1027 (1991).
- [75] P. L. Shkolnikov and A. E. Kaplan, "'Discharge Plasma - X-ray Laser" resonant couples for X-ray nonlinear optics," *Phys. Rev. A*, **44**: 6951-6953 (1991).
- [76] P. L. Shkolnikov and A. E. Kaplan, "X-ray third harmonic generation in plasmas of alkali-like ions", *Opt. Lett.* **16**: 1973-1975 (1991).
- [77] Y. J. Ding and A. E. Kaplan, "Nonlinear magneto-optical effects in vacuum: inhomogeneity-originated second harmonic generation in a dc magnetic field," *Intern. J. Nonl. Opt. Phys.* **1**:51-72 (1992).
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- [80] R. H. Enns, S. S. Rangnekar (Simon Fraser Univ.), and A. E. Kaplan (JHU), "Optical switching between bistable soliton states: a theoretical review", *Optical & Quantum Electronics*, **24**: 1295-1314 (1992).
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- [82] P. L. Shkolnikov, A. E. Kaplan, and A. Lago, "Phase matching for large-scale frequency upconversion in plasma", *Opt. Letts*, **18**: 1700-1702 (1993).
- [83] A. E. Kaplan and G. A. Swartzlander, "Self-bending of light: comment", *Opt. Letts*. **19**: 71 (1994).
- [84] A. E. Kaplan and P. L. Shkolnikov, "Super-dressed two-level atom: very high order harmonic generation and multi-resonances", *Phys. Rev. A*. **49**, 1275-1280 (1994).
- [85] E. Hudis, P. L. Shkolnikov, and A. E. Kaplan, "X-ray stimulated electronic Raman scattering in Li and He", *Appl. Phys. Lett.* **64**, 818-820 (1994).
- [86] A. E. Kaplan, P. L. Shkolnikov, and B. A. Akanaev, "Bright-bright  $2\pi$ -Solitons in Stimulated Raman Scattering", *Optics Letters* **19**, 445-447 (1994).
- [87] E. Hudis and A. E. Kaplan, "Ionization-front Soliton in the X-ray Stimulated Raman Scattering" *Optics Letters* **19**, 616-618 (1994)
- [88] E. Hudis, P. L. Shkolnikov, and A. E. Kaplan, "X-ray stimulated electronic Raman scattering in neutral gases and inhibited ionization", *JOSA B* **11**, 1158-1165 (1994).
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- [97] P. L. Shkolnikov, A. E. Kaplan, and A. Lago, "Phase-matching optimization of large-scale nonlinear frequency upconversion in neutral and ionized gases", *JOSA B* **13**: 347-354 (1996).
- [98] A. E. Kaplan and P. L. Shkolnikov, "Subfemtosecond Pulses in the Multi-Cascade Stimulated Raman Scattering", *JOSA B* **13**: 412-423 (1996).
- [99] A. E. Kaplan, S. F. Straub and P. L. Shkolnikov, "Electromagnetic bubble generation by half-cycle pulses", *Opt. Lett.*, **22**: 405-407 (1997)
- [100] P. L. Shkolnikov and A. E. Kaplan, "Laser-induced cascade particle production and nuclear reactions", *J. of Nonl. Opt. Phys. & Materials*, **6**, 161-167 (1997).
- [101] A. E. Kaplan, S. F. Straub and P. L. Shkolnikov, "Electromagnetic bubbles: sub-cycle, near- and sub-femtosecond solitons", *JOSA B*, **14**:3013-3024 (1997).
- [102] A. T. Obeidat, A. E. Kaplan, J. B. Khurgin and M. Stern, "Single-Fiber Two-Photon Fluoroprobe for Biological Markers", *J. of Nonl. Opt. Phys. & Materials*, **6**: 305-312 (1997).

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