

CURRICULUM VITAE

Personal Details:

Name & surname: Samuel Cohen
Date and Place of Birth: July 5, 1961, Thessaloniki, Greece
Nationality: Hellenic
Marital Status: Married, three children
Tel.: 2651 0 08540
e-mail: scohen@uoi.gr

Education – Career:

- Physics Department, University of Ioannina, Greece Feb. 2013 – present.
Associate Professor
- Laboratoire de Spectrométrie Ionique et Moléculaire, CNRS & Université Lyon I (France) Feb. 2009
Invited Professor
- Laboratoire de Spectrométrie Ionique et Moléculaire, CNRS & Université Lyon I (France) Sep. 2007 – Feb. 2008
Sabbatical Leave (Velocity Map Imaging (VMI) Techniques – Photoionization Microscopy)
- Physics Department, University of Ioannina, Greece Nov. 2002 – Jan. 2013
Assistant Professor
- High school teacher Sep. 98 – Oct. 2002.
- Institute of Accelerating Systems & Applications (IASA) Feb. 97 – August 98.
PostDoctoral Fellow
- Institut de Physique Nucléaire IN2P3 (CNRS), Orsay, France September 93 – January 97.
PostDoctoral Fellow (22 month European Union's Human Capital and Mobility fellowship)
- Laboratoire Aimé Cotton CNRS, Orsay, France May 92 – June 93.
PostDoctoral Fellow
- Theoretical & Physical Chemistry Institute (TPCI), May 91 – April 92.
Theoretical & Physical Chemistry Institute (NHRF), Athens, Greece
PostDoctoral Fellow
- PhD in Atomic Physics Sept. 85 – August 89.
Performed at TPCI, NHRF, Athens, Greece.
Presented at the University of Ioannina, Greece
Title: “*Multiphoton spectroscopy of Sr: $4dnl J=3$ autoionizing states and double ionization*”
- NHRF – CNRS (France – Laboratoire Aimé Cotton): June 87 & August. – October 86.
Exchange visitor program fellowship.
- Military Service May-October 84.
- Bachelor in Physics, Physics Department, University of Crete, Greece 1984.

Specialization:

- *Experiment:* Laser-atom interactions (Rydberg states (bound and autoionizing), Photoexcitation, photoionization, non-linear optics, optical pumping, Photoionization Microscopy).
- Development of chemionization polarized electron sources & charged particle optics.
- *Theory:* Semiempirical Phase-Shifted Multichannel Quantum Defect Theory, RKR method for the construction of atomic potential curves, Polarizability and hyperpolarizability calculations. Non-perturbative Stark effect.

Funded Research Programs:

- + "Atomic multiphoton ionization dynamics with photon – dressed core states". EU-TMR-ULF-IESL-FORTH (1996) (Coordinator).
- + Postgraduate Studies Committee UoI (2009): 12000 Euros for completing an electron energy analysis apparatus.
- + Program HRACLEITOS II (2011): 45500 Euros for a PhD research fellowship and purchase of Laboratory equipment (Coordinator).
- + Exchange program PICS (2015): ~15000 Euros, in collaboration with ILM team «Dynamique Multi-Echelles d'Edifices moléculaires», Lyon, France.
- + Program NEW RESEARCHERS (2018): 35000 Euros for two PhD research fellowships (Coordinator).

Referee in Scientific Journals:

- Journal of Physics B: Atomic Molecular & Optical Physics, IOP Publishing
- New Journal of Physics, IOP Publishing
- Measurement Science & Technology, IOP Publishing
- Physics Letters A, Elsevier
- Entropy, MDPI - Open Access Publishing

Publications/Presentations to Conferences:

- Publications in refereed Journals: 45 (three monographs)
- Publications in refereed Conference Proceedings: 8
- Publications in non-refereed Conference Proceedings: 11
- Presentations to Conferences: >60 (four invited)
- Non-self citations: >350

Publications in refereed Journals:

1. "Multiphoton single and double ionization of Strontium in the range 532-541 nm"

P. Camus, M. Kompitsas, S. Cohen, C.A. Nicolaides, M. Aymar, M. Crance and P. Pillet
J. Phys. B: At. Mol. Opt. Phys. **22**, 445-458 (1989).

2. "Observation and theoretical analysis of the odd $J=3$ autoionizing spectrum of Sr up to the 4d threshold"

M. Kompitsas, S. Cohen, C.A. Nicolaides, O. Robaux, M. Aymar and P. Camus
J. Phys. B: At. Mol. Opt. Phys. **23**, 2247-2267 (1990).

3. "Phase conjugation by degenerate four wave mixing in Barium vapor"

T. Mikropoulos, S. Cohen, M. Kompitsas, S. Goutis and K. Baharis
Optics Letters **15**, 1270-1272 (1990).

4. "Multipole structure in asymmetrical double Rydberg states"

P. Camus, S. Cohen, L. Pruvost and A. Bolovinos
Phys.Rev.A **48**, R9-11 (1993).

5. "Resonant double multiphoton ionization via planetary states"

S. Cohen, P. Camus and A. Bolovinos
J. Phys. B: At. Mol. Opt. Phys. **26**, 3783-3794 (1993).

6. "Effective core polarizabilities in Ba high- ℓ $Nsn\ell$ double Rydberg states"

P. Camus and S. Cohen
Phys.Rev. A **51**, 1985-1993 (1995).

7. "Polarization quantum defect energy dependence of high- ℓ double Rydberg states"

S. Cohen and P. Camus
J. Phys. B: At. Mol. Opt. Phys. **29**, 4323-4331 (1996).

8. “A flowing afterglow as a polarized electron source”

J. Arianer, S. Cohen, S. Essabaa, R. Frascaria and O. Zerhouni
Nuclear Instruments and Methods A **382**, 371-378 (1996).

9. “Beam characterization of the Orsay He afterglow polarized electron source”

S. Cohen, O. Zerhouni, J. Arianer, S. Essabaa, and R. Frascaria
J. Phys. D: Applied Physics **30**, 417-421 (1997).

10. “Study of non-linear optical phase conjugation in Ca by resonant degenerate four-wave mixing via bound excited states”

A. Bolovinos, S. Cohen, A. Lyras, C. Skordoulis, T. Mikropoulos and S. Assimopoulos
Applied Physics B **64**, 451-458 (1997).

11. “Neutral Ba $8sn\ell (\ell=6,7) + 5fn'\ell'$ double Rydberg spectroscopy”

P. Camus and S. Cohen
J. Opt. Soc. Am. B **14** 2340-2442 (1997).

12. “3dnd J=4,5 autoionizing Levels in Ca: Laser Optogalvanic Spectroscopy and Theoretical Analysis”

S. Assimopoulos, A. Bolovinos, E. Luc-Koenig, S. Cohen, A. Lyras, P. Tsekeris and M. Aymar
European Physical Journal D **1**, 243-254 (1998).

13. “Phase Conjugation by Degenerate Four Wave Mixing via Autoionizing States”

S. Cohen and A. Lyras
J. Opt. Soc. Am. B **15**, 1069-1077 (1998).

14. “Resonant widths, line intensities and lineshapes for MQDT models with two or more open channels”

S. Cohen
European Physical Journal D **4**, 31-38 (1998).

15. “Experimental and theoretical analysis of the $5pnp J=0^e, 1^e, 2^e$ autoionizing spectrum of Sr”

S. Cohen, E. Luc-Koenig, A. Bolovinos, M. Kompitsas, M. Aymar, H. Mereu and P. Tsekeris
European Physical Journal D **13**, 165-180 (2001).

16. “Accurate radial atomic model potentials by means of a novel RKR–QDT combined approach”

S. Cohen and M. Chrysos
J. Phys. B: At. Mol. Opt. Phys. **35**, 847–864 (2002).

17. “Phase conjugation through autoionizing states: a density matrix approach”

S. Cohen and A. Lyras
J. Phys. B: At. Mol. Opt. Phys. **37**, 1025-1043 (2004).

8. “Single and double ionization of magnesium via four-photon excitation of the $3p^2 \ ^1S_0$ autoionizing state: Experimental and theoretical analysis”

I. Lontos, A. Bolovinos, S. Cohen and A. Lyras
Phys. Rev. A **70**, 033403 (2004).

19. “Interacting asymmetric double Rydberg series: the Ba $8sn\ell (\ell=5)+5fn'\ell'$ case”

S. Cohen, P. Camus and A. Bolovinos
J. Phys. B: At. Mol. Opt. Phys. **38**, S1-S16 (2005).

20. “Construction of RKR–QDT atomic model potentials for the calculation of Lithium polarizabilities and hyper-polarizabilities”

S. Cohen and S. I. Themelis
J. Phys. B: At. Mol. Opt. Phys. **38**, 3705-3719 (2005).

21. “Numerical solution of Dalgarno-Lewis equations by a mapped Fourier grid method”

S. Cohen and S. I. Themelis
J. Chem. Phys. **124**, 134106 (2006).

22. “Two-photon ionization spectra of Calcium above the $4s_{1/2}$ threshold”

S. Cohen, I. Lontos, A. Bolovinos, A. Lyras, S. Benec'h and H. Bachau
J. Phys. B: At. Mol. Opt. Phys. **39**, 2693-2708 (2006).

- 23. “Odd-parity $J=11/2$ autoionizing Rydberg series of europium below the $5d\ ^9D_4$ threshold: Spectroscopy and multichannel quantum-defect-theory analysis”**
S. Bhattacharyya, M.A.N. Razvi, S. Cohen and S.G. Nakhate
Phys. Rev. A **76**, 012502/1-9 (2007).
- 24. “Dynamic dipole polarizabilities of the ground and excited states of confined hydrogen atom computed by means of a mapped Fourier grid method”**
S. Cohen, S. I. Themelis and K. D. Sen
International Journal of Quantum Chemistry **108**, 351-361 (2008).
- 25. “Single and double ionization of strontium in the vicinity of four-photon excitation of the $5p^2\ ^1S_0$ doubly excited state”**
I. Liontos S. Cohen and A. Bolovinos
J. Phys. B: At. Mol. Opt. Phys. **41**, 045601/1-11 (2008).
- 26. “One- and two-photon phase-sensitive coherent control of total ionization yields in the presence of static electric fields”**
A. Bolovinos, S. Cohen and I. Liontos
Phys. Rev. A **77**, 023413/1-7 (2008).
- 27. “Systematics of perturbative semiclassical quantum defect expansions probed by RKR-QDT and a Fisher-information-based criterion”**
S. Cohen
European Physical Journal D **55**, 67-74 (2009).
- 28. “Multiphoton Ca^{2+} production occurring before the onset of Ca^+ saturation: is it a fingerprint of direct double ionization?”**
I. Liontos, S. Cohen and A. Lyras
J. Phys. B: At. Mol. Opt. Phys. **43**, 095602 (2010).
- 29. “Transfer-matrix-based method for an analytical description of velocity-map-imaging spectrometers”**
M. M. Harb, S. Cohen, E. Papalazarou, F. Lépine and C. Bordas
Rev. Sci. Instrum. **81**, 125111 (2010).
- 30. “Energy dependence of photoelectron angular distributions from two- and four-photon ionization of Mg in the vicinity of the $3p^2\ ^1S_0$ doubly excited state”**
A. Dimitriou, S. Cohen and A. Lyras
J. Phys. B: At. Mol. Opt. Phys. **44**, 135001 (2011).
- 31. “Phase sensitive coherent control of atomic excitation in the presence of static electric fields: a frame transformation Stark theory approach”**
S. Cohen
J. Phys. B: At. Mol. Opt. Phys. **44**, 205402 (2011).
- 32. “Coupled channel theory of photoionization microscopy”**
L. B. Zhao, I. I. Fabrikant, J. B. Delos, F. Lépine, S. Cohen and C. Bordas
Phys. Rev. A, **85**, 053421 (2012).
- 33. “Strong laser-induced coupling between autoionizing states: the case of the four-photon-excited $3p^2\ ^1S_0$ state of magnesium”**
A. Dimitriou, S. Cohen, A. Lyras and I. Liontos
J. Phys. B: At. Mol. Opt. Phys. **45**, 205003 (2012).
- 34. “Wave Function Microscopy of Quasibound Atomic States”**
S. Cohen, M. M. Harb, A. Ollagnier, F. Robicheaux, M. J. J. Vrakking, T. Barillot, F. Lépine, and C. Bordas
Phys. Rev. Lett. **110**, 183001 (2013).
- 35. “Hydrogen Atoms under Magnification: Direct Observation of the Nodal Structure of Stark States”**
A. S. Stodolna, A. Rouzée, F. Lépine, S. Cohen, F. Robicheaux, A. Gijbetsen, J. H. Jungmann, C. Bordas, and M. J. J. Vrakking
Phys. Rev. Lett. **110**, 213001 (2013).

- 36. “Thermochromic phase-transitions of GafChromic films studied by z-scan and temperature-dependent absorbance measurements”**
A. D. Koulouklidis, S. Cohen and J. Kalef-Ezra
Medical Physics, **40**, 112701 (2013).
- 37. “Ion and electron spectroscopy of strontium in the vicinity of the two-photon-excited $5p^2\ ^1S_0$ state”**
A. Dimitriou and S. Cohen
Phys. Rev. A, **90**, 012513 (2014).
- 38. “Electron spectroscopy of strontium in the vicinity of the four-photon-excited $5p21S0$ state”**
A. Dimitriou and S. Cohen
Eur. Phys. J. D A, **69**, 238 (2015).
- 39. “Photoionization microscopy of the lithium atom: Wave-function imaging of quasibound and continuum Stark states”**
S. Cohen, M. M. Harb, A. Ollagnier, F. Robicheaux, M. J. J. Vrakking, T. Barillot, F. Lépine, and C. Bordas
Phys. Rev. A, **94**, 013414 (2016).
- 40. “Photodetachment and photoionization rainbows and glories”**
S. Cohen, P. Kalaitzis, S. Danakas, F. Lépine and C. Bordas
J. Phys. B: At. Mol. Opt. Phys. **50**, 065002 (2017).
- 41. “Influence of long-range Coulomb interaction in velocity map imaging”**
T. Barillot, R. Brédy, G. Celep, S. Cohen, I. Compagnon, B. Concina, E. Constant, S. Danakas, P. Kalaitzis, G. Karras, F. Lépine, V. Lorient, A. Marciniak, G. Predelus-Renois, B. Schindler, and C. Bordas
J. Chem. Phys. **147**, 013929 (2017).
- 42. “Interference-encoded photoionization time delays in the hydrogen atom”**
A. S. Stodolna, F. Lépine, A. Rouzée, S. Cohen, A. Gijbbersen, J. H. Jungmann-Smith, C. Bordas, and M. J. J. Vrakking
J. Phys. B: At. Mol. Opt. Phys. **50**, 164001 (2017).
- 43. “Photoionization microscopy: Hydrogenic theory in semiparabolic coordinates and comparison with experimental results”**
P. Kalaitzis, S. Danakas, F. Lépine, C. Bordas and S. Cohen
Phys. Rev. A **97**, 053412 (2018).
- 44. “Near-saddle-point-energy photoionization microscopy images of Stark states of the magnesium atom”**
P. Kalaitzis, S. Danakas, C. Bordas, and S. Cohen
Phys. Rev. A **99**, 023428 (2019).
- 45. “One- and two-photon phase-sensitive coherent-control scheme applied to photoionization microscopy of the hydrogen atom”**
P. Kalaitzis, D. Spasopoulos, and S. Cohen
Phys. Rev. A **100**, 043409 (2019).