Curriculum of Andrea Fioretti (January 2009)

Personal Information

Andrea Fioretti, Italian, born on 17/09/1964, married, two children.

Scientific Education

June 1983, "Maturità Scientifica";

July, 20th 1990, "Laurea" in Physics at the University of Pisa. Diploma thesis: “Study of the chaotic behavior of a CO_2 laser with intracavity saturable absorber”, advisor Ennio Arimondo.

March 6th, 1999, PhD in Physics, Scuola Normale Superiore, Pisa. PhD thesis: “Atom-atom collisions in a vapor of laser-cooled cesium atoms”, advisor Ennio Arimondo.

Employment

September 1990 – December 1991: military service

Janaury 1992 – July 1995: Phd thesis at Scuola Normale Superiore, Pisa.

Since September 1995 to present date: High school teacher of Mathematics and Physics.

November 1996 - July 1998, on leave from school teaching: E.U. Marie Curie post-doctoral Fellowship at the Laboratoire Aimé Cotton, in Orsay (France), in the group of Pierre Pillet.

September 2001 - August 2002: on leave from school teaching, full-time researcher in the Istituto per i Processi Chimico-Fisici, IPCF-CNR, in Pisa in the group of Carlo Gabbanini.

October 2004 - July 2006: on leave from school teaching, senior associate researcher at the Laboratoire Aimé Cotton, in Orsay (France), in the group of Pierre Pillet.

July 2008 to present date: on leave from school teaching, senior associate researcher at the Laboratoire Aimé Cotton, in Orsay (France), in the group of Pierre Pillet.

Scientific collaborations

From 1996 to 2004: collaboration with Ennio Arimondo and Francesco Fuso of the Physics Departement, University of Pisa, on the subjects of cold collisions and nanodeposition of laser cooled atoms.

Since July 1998 to present date: collaboration with Olivier Dulieu of Laboratoire Aimé Cotton, Orsay, on the interpretation of molecular spectra.

Since September 1998 to present date: collaboration with Carlo Gabbanini of the Istituto per i Processi Chimico-Fisici, IPCF-CNR, Pisa, on the subject of cold molecules.

Since 2008 to present date: collaboration with Maria Allegrini of the Physics Departement, University of Pisa, on the subject of cold molecules.

Survey of the research activity

The peculiar characteristic of my scientific career is that, after the graduation at Pisa University and the military service, I have always been sharing my time between teaching in the Italian High School system, in which I hold a permanent position since september 1991, and scientific research. From 1992 to the present date, I took several periods of leave from teaching to

perform full-time research. During the teaching years, I nevertheless kept on performing research collaborating with different institutions, mainly the Istituto per i Processi Chimico-Fisici, IPCF-CNR in Pisa

A former research interest, developed essentially during my Diploma thesis (Tesi di Laurea) and in the two following years, was the experimental study of the onset of deterministic chaos in a CO_2 laser with intracavity saturable absorber. My activity in this domain had continued also during the first year of my PhD thesis, on both experimental and theoretical problems. This work made me cope with nonlinear optical systems and provided me the basis of the expertise in experimental work, and a real passion for it.

During my PhD thesis, I approached the fascinating field of laser cooling of neutral alkali atoms (Cs). In particular, I built the first Magneto-Optical Trap (MOT) developed in Ennio Arimondo's group in Pisa. My PhD thesis reported the study of inelastic cold collisions leading to a fine-structure change in one of the colliding atoms. This process represents a significant trap-loss channel for a cesium MOT and, at that time, was the object of an intense experimental and theoretical investigation in several groups and on different alkalis, in the quest for Bose-Einstein condensation.. My experiment showed for the first time a direct evidence of the process, through the detection of photons emitted on the cesium D1 line after a collision..

As a Marie Curie post-doctoral Fellow, I joined the group of Pierre Pillet at the Laboratoire Aimé Cotton, There, I have been one of the principal actors of a breakthrough experiment in the domain of cold molecules and photoassociation. We not only observed for the first time the photo-associative processes among laser-cooled cesium atoms but, more basically, detected for the first time ultra-cold ($10\ \mu K < T < 200\ \mu K$) dimers, specifically Cs_2 molecules in their ground state. This pioneering experiment, that has been the object of several press reports, influenced significantly the cold atom community. Soon after, cold molecules have been produced also with methods other than photoassociation (buffer gas cooling and Stark slowing) and finally also by quantum degenerate gases. This domain is still evolving and receives much interest, expecially in the perspect of performing fondamental high precision measurements of fundamental quantities with cold molecules (edm, CPT violation) and of quantum computing applications. During my stay as a post-doc, I also contributed to experiments investigating long-range interactions with cold Rydberg atoms. This work was performed in collaboration with Tom Gallagher of the University of Virginia.

Other topics investigated either theoretically or experimentally in this period are: 1) a theoretical work on the velocity selective coherent population trapping (VSCPT) cooling mechanism in helium, and 2) an experimental investigation of the phenomenon of radiation trapping in a cold atom environment, 3) an experimental work on room temperature energy-pooling collisions, and 4) the realization of optical tweezers for biological material.

After my postdoc I started my collaboration with Carlo Gabbanini at the IPCF-CNR in Pisa. Making slightly change the interests in this group, that was formerly focused of photoionization cross section measurements on cold atomic samples, I set up an experiment similar to that in Orsay, with laser cooled rubidium atoms. This has beeen successful and has led to the first production and detection of cold rubidium dimers. These molecules have been successively trapped in a dipolar trap with a CO_2 laser, realizing one of the very few molecular traps in the world. The cold molecule domain has remained the principle research interest of Gabbanini's group up to date.

In recent years in Pisa one interest in my research has been the realization of nanostrucures, obtained by the optical manipulation of an effusive neutral beam of Barium atoms. This work has been the result of a close collaboration with the group of Ennio Arimondo and Francesco Fuso. We have realized lithography of microstructures by patterning nonanethiol protected gold films. We had just started to perform nanostructured depositions of barium atoms guided by an optical mask when the experiment had to stop due to lack of funds.

From October 2004 to July 2006, in Laboratoire Aimé Cotton, I've been working on an

experiment aimed to produce a Bose-Einstein Condensate of cesium atoms by evaporative cooling in a crossed optical dipole trap, produced by a Nd-YAG or a fiber lasers. This is a quite hard experiment due to the very particular collisional properties of cesium (large two-body and three-boy inelastic losses), which make it very difficult to condense. The idea is to collect a large sample of cesium atoms in a big optical dipole trap and than perform forced evaporation by optically reducing the size of the trap as well as its dept. According to the simulations we performed, the timescale of the cesium condensation seemed very interesting (BEC obtained in less than two seconds) but some laboratory accidents have prevented, up to now, to complete the experiment.

From July 2008 to present date I joined again the group of Pierre Pillet at the Laboratoire Aimé Cotton, There, I'm starting; within the group, a new project aimed to create an ion source for a Focused Ion Beam machine starting from a sample of laser cooled atoms. This work is performed in partenership with Orsay Physics company, a world leader producer of FIB machines and is raising some interest because of it could represent a nice example of technological transfert from research to industry and of merging of complementary expertises. Similar projects are already underway in the Technical University of Eindhoven, in The Netherlands, and at NIST in the USA. They started with at least a couple of years of advance with respect to us and that is why we we elaborated an original project that is expected to produce a prototype of a "Cold-FIB" machine within 2011. The atom chosen for this project is initially cesium, for which myself and the group have a large expertise in laser cooling, because its reactive properties on different surfaces (Cesium, not coming from cold atoms, is one of the element already delivered by existing FIBs but this source shows quite bad characteristics in terms of cromaticity, focal properties and stability). Within Pillet's group, I'm also collaborating with Daniel Comparat on his cold molecule experiment., that recently has achieved the vibrational cooling of the cold molecules in the lowest (v=0) vibrational level of the singlet ground state. Forthcoming perspectives for this experiment are the production and the trapping of cold cesium molecules in their absolute ground-state, that is to say translationally, vibrationally and, finally rotationally cold

Teaching experience

After completing my PhD in 1995, I always shared my time between teaching and research.

At high schoool level, I have been teaching Mathematics and Physics since 1995, where I hold a permanent position of secondary level teacher..

At University level I have been laboratory assistant for 2 years, and teaching assistant in a General Physics course for 3 years.

Publications

Total number of publications with peer review: **n. 49**

of which on international journals: **n. 35**

and on books **n. 14**

Total number of papers presented in International Conferences: **n. 67**

of which presented by Andrea Fioretti: **n. 19**

of which presented as "invited speaker": **n. 7**

(detailed list of publications follows on the next page)

A – Publications on international journals with peer review

A1. F. Papoff, A. Fioretti, and E. Arimondo: *Return Maps for Intensity and Time in a Homoclinic-Chaos Model applied to a Laser with Saturable Absorber,* Phys. Rev. **A44**, 4639-4651 (1991).

A2 F. Papoff, A. Fioretti, E. Arimondo, G.B. Mindlin, H.G. Solari, and R. Gilmore: *Structure of Chaos in the Laser with Saturable Absorber*, Phys. Rev. Lett. **68**, 1128-1131 (1992).

A3. A. Fioretti, L. Guidoni, R. Mannella, and E. Arimondo: *Stochastic Resonance in a Laser with Saturable Absorber*, J. Stat. Phys. **70**, 403-412 (1993).

A4. A. Zeni, J.A.C. Gallas, A. Fioretti, F. Papoff, B. Zambon, and E. Arimondo: *Lyapunov Exponents and Return Maps for a Model of a Laser with Saturable Absorber*, Phys. Lett. **A 172**, 247-255 (1993).

A5. A. Fioretti, F. Molesti, F. Papoff, B. Zambon, and E. Arimondo: *Topological Analysis of a Laser with Saturable Absorber in Experiments and Models*, Int. J. of Bifurcations and Chaos **3**, 559-565 (1993).

A6. R. Mannella, A. Fioretti, L. Fronzoni, B. Zambon, E. Arimondo, and S. Chillemi: *Stochastic resonance as a tool for signal processing: discrete Markov schemes versus continuous dynamics in a toy model of ion channel conduction*, Phys. Lett. **A 197**, 25-30 (1995).

A7. P. Alcantara Jr., L. Guidoni, A. Barsella, A. Fioretti, and E. Arimondo: *Frequency tuning of homoclinic chaos in an infrared laser with an osmium tetroxide intracavity saturable absorber*, J. Opt. Soc. Am. **B 12**, 1326-1333 (1995).

A8. A. Fioretti, B. Zambon, and E. Arimondo: *Limits of Velocity Selective Coherent Population Trapping*, Quantum and Semiclassical Optics **7**, 751-756 (1995).

A9. S. Grego, M. Colla, A. Fioretti, J.H. Müller, P. Verkerk, and E. Arimondo: *A cesium magneto-optical trap for cold collision studies*, Opt. Comm. **132**, 519-526 (1996).

A10. C. Gabbanini, A. Evangelista, S. Gozzini, A. Lucchesini, A. Fioretti, M. Colla, J.H. Müller, and E. Arimondo: *Scaling laws in magneto-optical traps*, Europhys. Lett. **37**, 251-256 (1997).

A11. A. Fioretti, J.H. Müller, P. Verkerk, M. Allegrini, E. Arimondo, and P.S. Julienne: *Direct measurement of fine-structure collisional losses from a Cs magneto-optical trap*, Phys. Rev. **A 55**, R3999-R4002 (1997).

A12. F. de Tomasi, S. Milosevic, P. Verkerk, A. Fioretti, M. Allegrini, Z.J. Jabbour, and J. Huennekens: *Experimental study of $6P_j+6P_j$ -> $7P_{j'}+6S$ energy pooling collisions and modelling of the excited atom density in the presence of optical pumping and radiation trapping*, J. Phys. B: At. Mol. Opt. Phys. **30**, 4991-5008 (1997).

A13. A. Fioretti, A.F. Molisch, J.H. Müller, P. Verkerk, and M. Allegrini: *Observation of radiation trapping in a dense Cs magneto-optical trap*, Opt. Comm. **149**, 415-422 (1998).

A14. I. Mourachko, D. Comparat, F. de Tomasi, A. Fioretti, P. Nosbaum, V. Akulin, and P. Pillet: *Many-Body Effects in a Frozen Rydberg Gas*, Phys. Rev. Lett. **80**, 253-256 (1998).

A15. A. Fioretti, D. Comparat, A. Crubellier, O. Dulieu, F. Masnou-Seeuws, and P. Pillet: *Formation of Cold Cs_2 Molecules through Photoassociation*, Phys. Rev. Lett. **80**, 4402-4405 (1998).

A16. A. Fioretti, D. Comparat, C. Drag, C. Amiot, O. Dulieu, F. Masnou-Seeuws, and P. Pillet, *Photoassociative spectroscopy of the Cs_2 0_g^- state*, Eur. Phys. J. D **5**, 389-403 (1999).

A17. D. Comparat, C. Drag, A. Fioretti, O. Dulieu, and P. Pillet, *Photoassociative spectroscopy and formation of cold molecules in cold cesium vapor: trap-loss spectrum versum ion spectrum*, J. Mol. Spectr. **195**, 229-235 (1999).

A18. A. Fioretti, D. Comparat, C. Drag, T.F. Gallagher, and P. Pillet, *Long-Range Forces between Cold Atoms*, Phys Rev. Lett. **82**, 1839-1842, (1999).

A19. D. Comparat, C. Drag, B. Laburthe Tolra, A. Fioretti, P. Pillet, A. Crubellier, O. Dulieu, and F. Masnou-Seeuws: *Formation of cold Cs_2 ground state molecules through photoassociation in the 1_u pure long-range state*, Eur. Phys. J. D **11**, 59-71 (2000).

A20. C. Gabbanini, A. Fioretti, A. Lucchesini, S. Gozzini, and M. Mazzoni: *Cold rubidium molecules formed in a magneto-optical trap*, Phys. Rev. Lett. **84**, 2814-2817 (2000).

A21. P. Pillet, C. Drag, B. Laburthe Tolra, D. Comparat, A. Fioretti, S. Guibal, C. Amiot, A. Crubellier, O. Dulieu, and F. Masnou-Seeuws: *Photoassociative Spectroscopy and formation of Cold Molecules,* Physica Scripta Vol. **T86**, 38-45 (2000).

A22. A. Fioretti, E. Arimondo, and A. Crubellier: *Flux enhancement model for cold cesium fine-structure changing collisions*, Eur. Phys. J. D **12**, 219-225 (2000).

A23. A. Fioretti, C. Amiot, C.M. Dion, O. Dulieu, M. Mazzoni, G. Smirne, and C. Gabbanini: *Cold rubidium molecule formation through photoassociation: a spectroscopic study of the 0g- long-range state of $^{87}Rb_2$*, Eur. Phys J. D **15** 189 (2001).

A24. I. Cacelli, A. Fioretti, C. Gabbanini , M. Mazzoni, and M. Persico: *Line shape study of the two-color three-photon ionization of Rb atoms*, Phys. Rev. A **66**,023408 (2002).

A25. R.F. Gutterres, C. Amiot, A. Fioretti , C. Gabbanini, M. Mazzoni, and O. Dulieu: *Determination of the 87 Rb 5P state dipole matrix element and radiative lifetime from the photoassociative spectroscopy of the $^{87}Rb_2$ 0g- long-range state*, Phys. Rev. A **66**, 024502 (2002).

A26. N.N Bezuglov, A.F. Molisch, A. Fioretti, C. Gabbanini, F. Fuso, and M. Allegrini: *Time-dependent radiative transfer in a magneto-optical trap*, Phys. Rev. A **68**, 063415 (2003).
A27. A. Fioretti, M. Fazzi, M. Mazzoni, T. Ban, and C. Gabbanini: *An optical trap for cold rubidium molecules*, Opt. Comm., **243**, 203 (2004).
A28. A. Fioretti, J. Lozeille, C.A. Massa, M. Mazzoni, and C. Gabbanini: *Ultra-cold molecules*, Physica Scripta, Vol. **T112**, 13-19 (2004).
A29. A. Camposeo, A. Fioretti, F. Tantussi, S. Gozzini, E. Arimondo, and C. Gabbanini: *Patterning nonanethiol protected gold films by barium atoms*, Appl. Phys. B **79**, 539-542 (2004).
A30. A. Fioretti, A. Camposeo, F. Tantussi, E. Arimondo, S. Gozzini, and C. Gabbanini: *Atomic lithography with barium atoms*, Appl. Surf. Sci, **248**, 196-199. (2005)
A31. J. Lozeille, A. Fioretti, C. Gabbanini, Y. Huang, H.K. Pechkis, D. Wang, P.L. Gould, E.E. Eyler, W.C. Stwalley, M. Aymar, and O. Dulieu: *Detection by two-photon ionization and magnetic trapping of cold Rb_2 triplet state molecules*, Eur. Phys. J. D, **39**, 261-269 (2006)
A32. D. Comparat, A. Fioretti, G. Stern, E. Dimova, B. Laburthe Tolra, and P. Pillet: *Optimized production of large Bose Einstein Condensates*, Phys. Rev. A, **73**, 043410 (2006)
A33. E. Dimova, O. Morizot, G. Stern, C.L. Garrido Alzar, A. Fioretti, V. Laurent, D. Comparat, H. Perrin, and P. Pillet: *Continuous transfer and laser guiding between two cold atom traps*, Eur. Phys. J. D, **42**, 299-308 (2007).
A34. A. Fioretti, O. Dulieu, and C. Gabbanini: *Experimental evidence for an isotopic effect in the formation of ultracold ground-state rubidium dimers*, J. Phys. B, At., Mol., and Opt. Phys., **40**, 3283-3293 (2007).
A35. S.D. Kraft, J. Mikosch, P. Staanum, J. Deiglmayr, J. Lange, A. Fioretti, R. Wester, and M. Weidemueller: *A high-resolution time-of-flight mass spectrometer for the detection of ultracold molecules*, Appl. Phys. B, Lasers and Optics, **89**, 453-457 (2007).

B – Publications on books with peer review

B1. F. Papoff, A. Fioretti, E. Arimondo, and N.B. Abraham: *Time return maps and distributions for the laser with saturable absorber*, in "Measures of Complexity and Chaos", N.B. Abraham, M. Albano, A. Passamante and P.E. Rapp editors, 309-312 (Plenum, New York, 1990).
B2. F. Papoff, D. Dangoisse, A. Fioretti, E. Arimondo, P. Colet, and M. San Miguel: *Passage time statistics and scaling laws in LSA bistable regimes*, in "O.S.A. Proceedings of Nonlinear Dynamics in Optical Systems Conference", N.B. Abraham, E.M. Garmire and P. Mandel editors, 293-296 (Opt. Soc. Am., Washington DC, 1991).
B3. A. Fioretti, F. Papoff, B. Zambon, and E. Arimondo: *Different chaotic regimes in LSA*, in "O.S.A. Proceedings of Nonlinear Dynamics in Optical Systems Conference", N.B. Abraham, E.M. Garmire and P. Mandel editors, 554-557 (Opt. Soc. Am., Washington DC, 1991).
B4. C. Frediani, C. Ascoli, S. Lucia, P. Verkerk, L. Guidoni, A. Fioretti, and E. Arimondo: *Optical trapping and manipulation of single cells and motile microorganisms by laser diode radiation*, SPIE Proceedings **2328**, 161-166 (1994).
B5. P. Verkerk, A. Fioretti, L. Guidoni, E. Arimondo, C. Ascoli, C. Frediani, and S. Lucia: *Intrappolamento ottico e manipolazione di singole cellule attraverso radiazione laser a diodo*, in "Laser e Luce in Chirurgia e Medicina ed in Biotecnologia", R. Pratesi editor, 491-499 (Firenze, 1995).
B6. P. Pillet, V. Akulin, D. Comparat, F. de Tomasi, A. Fioretti, et I. Mourachko: *Atomes de Rydberg ultra-froids*,, Ann. Phys. Fr. **23**, C1-49-C1-56 (1998).
B7. A. Fioretti, D. Comparat, C. Drag, A. Crubellier, O. Dulieu, F. Masnou-Seeuws, C. Amiot, and P. Pillet, *Translationally cold Cs_2 molecules formation in a magneto-optical trap*, **CP454**, Resonance Ionization Spectroscopy, J.C. Vickerman, I. Lyon, N.P. Lockyer, and J.E. Parks editors, 147-152 (1998).
B8. C. Drag, B. Laburthe-Tolra, D. Comparat, A. Fioretti, C. Amiot, A. Crubellier, O. Dulieu, F. Masnou-Seeuws, S. Guibal, and P. Pillet: *Photoassociation spectroscopy of Cs_2: formation of cold molecules and determination of the Cs-Cs scattering length*, in press in "Bose-Einstein condensates and atoms lasers", S. Martellucci, A.N. Chester, A. Aspect, and M. Inguscio editors, (Kluwer Academic/Plenum Publishers, 2000).
B9. S. Guibal, B. Laburthe-Tolra, C. Drag, D. Comparat, A. Fioretti, A. Crubellier, O. Dulieu, F. Masnou-Seeuws, and P. Pillet: *Formation de molécules de Cs_2 froides,* J. Phys. IV France **10**, Pr8-151 (2000).
B10. A. Fioretti, C. Drag, D. Comparat, B. Laburthe-Tolra, O. Dulieu, A. Crubellier, C. Amiot, F. Masnou-Seeuws, and P. Pillet, *Formation of cold Cs_2 molecules through photoassociation*, **CP500**, The physics of electronic and atomic collisions, Y. Itikawa, K. Okuno, H. Tanaka, A. Yagishita and M. Matsuzawa editors, 198-206 (2000).
B11. A. Fioretti, C. Gabbanini, M. Persico, I. Cacelli, and M. Mazzoni, *Line Shape Study of Three-Photon Ionization through Intermediate studies of Rb Atoms*, **CP559**, Spectral Line Shapes: Volume 11, 15th ICSLS, J. Seidel editor, 293-295 (2001).
B12. A. Fioretti, C. Gabbanini, and M. Mazzoni, *Trappole & Trappole: manipolazioni e raffreddamento di atomi e molecole; manipolazioni di cellule e microorganismi effettuati con il laser*, in 40 anni di Luce laser; Quaderni di

Ottica e fotonica vol. **7**, G.C. Righini and M. A. Forastiere editors, 123-127 (2001).

B13 C. Gabbanini, and A. Fioretti, *Making cold molecules from laser-cooled atoms*, in Trapped Particles and Fundamental Physics, S. Atutov, R. Calabrese, and L. Moi editors, 181-200 (2002).

B14. G. Stern, E. Dimova, A. Fioretti, D. Comparat, and P.Pillet, *Magnetic or optical molasses loading for a Cs dipole trap*, Proc. SPIE **6604**,66040M (2007).

C- Proceedings of International Conferences presented by Andrea Fioretti

C1. A. Fioretti, L. Guidoni, R. Mannella, L. Fronzoni, and E. Arimondo: *Stochastic Resonance in a Laser with Saturable Absorber*, in Nato Advanced Research Workshop on "Stochastic Resonance in Physics and Biology", S. Diego (USA), March 30-April 3, 1992.

C2. R. Mannella, A. Fioretti, L. Fronzoni, B. Zambon, E. Arimondo, M. Barbi, S. Chillemi, and D. Petracchi: *Stochastic Resonance in Single Ion Channel Conduction: Discrete Markov Schemes versus Continous Dynamics* , in Nato Advanced Research Workshop on "Stochastic Resonance in Physics and Biology", S. Diego (USA), March 30-April 3, 1992.

C3. A. Fioretti, F. Molesti, F. Papoff, B. Zambon, and E. Arimondo: *Topological Analysis of Laser with Saturable Absorber in Experiments and Models* , in Abstracts of the Workshop on "Dynamical Measures of Complexity and Chaos II", Bryn Mawr (USA), August 13-15, 1992.

C4. P. Verkerk, A. Fioretti, L. Guidoni, E. Arimondo, C. Ascoli, C. Frediani, and S. Lucia: *Intrappolamento ottico e manipolazione di singole cellule attraverso radiazione di laser a diodo*, pag. 478-482 in Atti del 3^{o} Convegno Nazionale "Strumentazione e metodi di misura Elettroottici", Pavia (Italy), May 25-27, 1994 (oral paper, INVITED).

C5. M. Allegrini, P. Verkerk, A. Fioretti, S. Grego, F. Fuso, and E. Arimondo, *Collisioni fredde in vapori di Cesio*, pag. L2 del XVIII Congresso del Settore FAM del GNSM-CNR / IV Congresso della Sezione A del INFM, Firenze (Italy), October 1994, (oral paper, INVITED).

C6. A. Fioretti, J.H. Müller, P. Verkerk, M. Allegrini and E. Arimondo: *Direct measurement of the D2 to D1 energy transfer in Cs magneto-optical trap*, P17 in III Workshop "Optics and Interferometry with atoms", Elba (Italy), June 10-12, 1996.

C7. A. Fioretti, J.H. Müller, M. Colla, A. Molisch and M. Allegrini, *Investigation of radiation trapping in a Cs magneto-optical trap*, B12 in 13th International Conference on "Spectral Lineshapes", Firenze (Italy), June 16-21, 1996.

C8. A Fioretti, J.H. Müller, P. Verkerk, M. Allegrini, and E. Arimondo: *Atom-atom collisions in a magneto-optical trap*, in HCM Network-Workshop, Vulcano (Italy), September 1996, (oral paper, INVITED).

C9. I. Mourachko, D. Comparat, F. de Tomasi, A. Fioretti, V. Akulin, and P. Pillet: *Many-Body Interaction in a Frozen Cs Rydberg gas*, P8B in XVII International Symposium on "Molecular Beams", Orsay (France), June 2-6, 1997.

C10. A. Fioretti, D. Comparat, C. Drag, O. Dulieu, A. Crubellier, F. Masnou-Seeuws, C. Amiot, and P. Pillet, *Photoassociation spectroscopy in a laser cooled cesium sample and cold molecules formation*, in ESCOLAR '98, "Euroconference on slow collisions between laser-manipulated atoms", Burgenland (Austria), April 1-5, 1998, (oral paper, INVITED).

C11. A. Fioretti, D. Comparat, C. Drag, A. Crubellier, O. Dulieu, F. Masnou-Seeuws, C. Amiot, and P. Pillet, *Translationally cold Cs_2 molecules formation in a magneto-optical trap*, in the 9th International Symposium on "Resonance Ionization Spectroscopy", Manchester (U.K.), June 21-25, 1998, (oral paper).

C12. A. Fioretti, D. Comparat, C. Drag, A. Crubellier, O. Dulieu, F. Masnou-Seeuws, C. Amiot, and P. Pillet, *Cs_2 cold molecules formation through photoassociative scheme*, pag. 6-8 in the 6th ECAMP "European Conference on Atomic and Molecular Physics", Siena (Italy), July 14-18, 1998.

C13. A. Fioretti, D. Comparat, C. Drag, B. Laburthe Tolra, C. Amiot, A. Crubellier, O. Dulieu, F. Masnou-Seeuws, and P. Pillet: *Formation of cold Cs_2 molecules through photoassociation*, in XXI ICPEAC, "International Conference on the Physics of Electronic and Atomic Collisions", Sendai (Japan), July 1999, (oral paper, INVITED).

C14. A. Fioretti, M. Fazzi, G. Smirne, D. Ciampini, P. Verkerk, J.H. Müller, and E. Arimondo: *Inelastic heteronuclear collisions in a 2-species Rb-Cs magneto-optical trap*, in Workshop on "Prospects of Cold Molecules", Heidelberg (Germany), 8-10 November, 1999.

C15. A.Fioretti, M. Mazzoni, G. Smirne, and C. Gabbanini: "Experiments with cold rubidium molecules", in "Cold Molecules 2001: Coherent Control and Cold Molecules", Gif-sur-Yvette (France), October 21-25, 2001, (oral paper, INVITED).

C16. A.Fioretti, A. Camposeo, E. Arimondo, S. Gozzini, and C. Gabbanini: "Esperimenti di nanolitografia di Bario",

in "Cold Molecules 2001: Coherent Control and Cold Molecules", Congresso SIF, Parma (Italy), September 17-22, 2003 (oral paper).

C17. N. Zahzam, T. Vogt, G. Stern, M. Mudrich, A. Fioretti, D. Comparat, and P. Pillet: *Cold Collisions in an Atomic and Molecular Trap*, pag. 33 in EPS 13, "Beyond Einstein, Physics for the 21st century", Bern (Switzerland), 11-15 July 2005, (oral paper, INVITED).

C18. N. Zahzam, T. Vogt, M. Mudrich, A. Fioretti, D. Tate, D. Comparat, and P. Pillet: *At the Frontiers of Rydberg Gases and Ultra-Cold Plasma*, pag 55 in EPS 13, "Beyond Einstein, Physics for the 21st century", Bern (Switzerland), 11-15 July 2005, (oral paper).

C19. G. Stern, E. Dimova, A. Fioretti, D. Comparat, A. Crubellier, and P. Pillet: *Realization of an optical dipole trap for BEC of cesium atoms*, Comol, Les Houches (France) , March 6th-10th 2006.

D- Proceedings of International Conferences of which Andrea Fioretti is co-author

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