

CURRICULUM VITAE ET STUDIORUM

DOTT. FEDERICO PEPI

Luogo e data di nascita: Roma , 21/11/1963

Stato civile: coniugato

Ruolo Accademico

1995-2003, ricercatore universitario, settore scientifico disciplinare Chim03 – Chimica Generale ed Inorganica, presso l'Università degli Studi di Roma "La Sapienza", Dipartimento di Studi di Chimica e Tecnologia delle Sostanze Biologicamente Attive.

2004- oggi, professore associato, settore scientifico disciplinare Chim03 – Chimica Generale ed Inorganica, presso l'Università degli Studi di Roma "La Sapienza", Dipartimento di Studi di Chimica e Tecnologia delle Sostanze Biologicamente Attive.

Studi Superiori ed Universitari

1977-1982, Liceo Classico "Nazareno" di Roma, Maturità classica conseguita nel luglio 1982

1983-1989, Corso di laurea in Chimica e Tecnologie Farmaceutiche, Università di Roma "La Sapienza". Tesi di Laurea presso la cattedra di Chimica Generale ed Inorganica della Facoltà di Farmacia.

a.a.**1988-1989**, Laurea conseguita il 19 luglio 1989 con la votazione di 106/110 , relatore il Prof. Pierluigi Giacomello.

Formazione post-laurea

1990, vincitore di due concorsi di Dottorato di Ricerca, rispettivamente in Scienze Chimiche ed in Scienze Farmaceutiche

1990-1993, Dottorato di Ricerca in Scienze Chimiche, titolo conseguito il 22 settembre 1993

1991, Abilitazione alla professione di Farmacista

1993, vincitore di una borsa di studio CNR del Comitato Nazionale per le Scienze Chimiche

1993, vincitore premio di laurea intitolato al Prof. Giordano Giacomello

1994, vincitore del concorso di Post-dottorato in Scienze Farmaceutiche

1999, vincitore di una borsa CNR-NATO per ricerche all'estero

Soggiorni di studio e di ricerca all'estero e in Italia

- Purdue University, Stati Uniti, (giugno-ottobre 1999)
- Istituto di Chimica Nucleare, Area di ricerca del CNR di Montelibretti
- Università di Tor Vergata, Roma
- Seconda Università di Napoli

Pubblicazioni

L'attività scientifica è documentata a tutt'oggi da 68 lavori pubblicati o in fase di stampa su riviste internazionali ad alto indice di impatto.

Elenco pubblicazioni

- 1) P. Giacomello and F. Pepi
"Reactivity and Selectivity of the Methoxycarbonil Cation in the Gas-Phase Electrophilic Aromatic Substitution"
Journal of Physical Chemistry, **1993**, 93, 4421.
- 2) M. Attina, F. Cacace, E. Ciliberto, G. de Petris, F. Grandinetti, F. Pepi and A. Ricci
"Gas-Phase Ion Chemistry of Nitramide. A Mass Spectrometry and ab Initio study of H₂N-NO₂ and the H₂N-NO₂^{+/-}, [H₂NNO₂]H⁺ and [H₂NNO₂]⁻ Ions."
Journal of the American Chemical Society, **1993**, vol. 115, 26, 12398.
- 3) F. Cacace, F. Grandinetti, and F. Pepi
"An Extraordinarily Violent Molecular Dissociation: The Unprecedented Kinetic Energy Release in the Metastable Fragmentation of a Singly Charged Cation, HONF⁺."
Angewandte Chemie Int. Ed. Engl., **1994**, 33, 1, 123.
- 4) M. Aschi, F. Grandinetti, and F. Pepi
"The Addition of NF₂⁺ to H₂O as a Route to Gaseous Protonated F₂NOH".
International Journal of Mass Spectrometry and Ion Processes, **1994**, 130, 117-125.
- 5) M. Aschi, F. Cacace, F. Grandinetti, and F. Pepi
"Gaseous Protonated Nitrosyl Fluoride. Experimental and Theoretical Characterization of Two Distinguishable Isomers, HONF⁺ and Evaluation of the Barrier for Their Interconversion".
Journal of Physical Chemistry, **1994**, 98, 10, 2713.

- 6) F. Cacace, F. Grandinetti, and F. Pepi
“Gaseous F_2NO^+ Cation from the Addition of NF_2^+ to N_2O . Structure and Mechanism of Formation”.
Journal of Physical Chemistry, **1994**, 98, 33, 8009.
- 7) G. de Petris, G. Occhiucci and F. Pepi
“A Mass Spectrometry Study of Gaseous H_4PO_3^+ and H_2PO_3^- Ions”.
International Journal of Mass Spectrometry and Ion Processes, **1994**, 136, 155.
- 8) F. Cacace, F. Grandinetti, and F. Pepi
“Experimental Observation of Stable Cyanodiazonium Ions, NC-N_2^+ ”.
J. Chem. Soc. Chemical Communications, **1994**, 2173.
- 9) F. Cacace, F. Grandinetti, and F. Pepi
“Gaseous Fluorodiazonium Ions. Experimental and Theoretical Study on Formation and Structure of FN_2^{++} ”.
Inorganic Chemistry, **1995**, 34, 1325.
- 10) F. Angelelli, M. Aschi, F. Cacace, F. Pepi and G. de Petris
“Gas Phase Reactivity of Hydroxylamine Toward Charged Electrophiles. A Mass Spectrometric and Computational Study of the Protonation and Methylation of H_2NOH ”.
Journal of Physical Chemistry, **1995**, 99, 6551.
- 11) F. Cacace, G de Petris, F. Pepi and F. Angelelli
“Gas-Phase Nitronium Ion Affinities”.
Proceedings of the National Academy of Sciences USA, **1995**, 92, 8635.
- 12) F. Grandinetti, F. Pepi and A. Ricci
“Ionic Fluoruration of Carbon Monoxide as a Route to Gas-Phase Carbonylation of Inert C-H and N-H Bonds”.
Chemistry European Journal, **1996**, 2, 5, 495.
- 13) M. Aschi, F. Cacace G. de Petris and F. Pepi
“Gas-Phase Proton Affinity of Nitric Acid and its Esters. A Mass Spectrometric and ab Initio study on the Existence and the Stability of Two Isomers of Protonated

Ethyl Nitrate”

Journal of Physical Chemistry, **1996**, 100, 16522.

- 14) F. Cacace G. de Petris, F. Pepi, I. Rossi and A. Venturini
“The Gas Phase Reaction of Nitronium Ion with Ethylene. An Experimental and Theoretical Study”
Journal of the American Chemical Society, **1996**, vol. 118, 26, 12719.
- 15) F. Cacace G. de Petris and F. Pepi
“Gas-Phase NO^+ Affinities”
Proceedings of the National Academy of Sciences, USA, **1997**, 94, 3507.
- 16) F. Bernardi, F. Cacace G. de Petris, F. Pepi, and I. Rossi
Gaseous $[\text{N}_2\text{O}_5]\text{H}^+$, $[\text{N}_2\text{O}_4]\text{H}^+$ and Related Species from the Addition of NO_2^+ and NO^+ Ions to Nitric Acid and its Derivatives”.
Journal of Physical Chemistry, **1998**, 102, 11, 1987.
- 17) G. de Petris and F. Pepi
“Protonation Induced Ligand Switching Within NO_2^+ Bound Clusters”
Chem. Phys. Letters, **1998**, 285, 366.
- 18) M. Aschi, M. Attinà, F. Cacace, R. Cipollini and F. Pepi
“Gas Phase Positive and Negative Ion Chemistry of Methyl Hydroperoxide”.
Inorganica Chimica Acta, **1998**, 275-276, 192.
- 19) F. Cacace, R. Cipollini, G. de Petris, F. Pepi, M. Rosi and A. Sgamellotti
“Isotope Exchange in Ionized O_3/O_2 mixtures: The Role of O_5^+ a Unique Odd-membered O_n^+ Complex.”
Inorganic Chemistry, **1998**, 37, 1398.
- 20) F. Bernardi, F. Cacace, G. de Petris, F. Pepi and I. Rossi
“ XeNO_3 , a Gaseous Cation Characterized by a Remarkably Strong Xe-O Bond”.
Journal of Physical Chemistry, **1998**, 102, 5831.
- 21) F. Cacace, G. de Petris, F. Pepi, M. Rosi and A. Sgamellotti
“Elemental Chlorine and Chlorine Fluoride: Theoretical and Experimental Proton Affinity and the Gas-Phase Chemistry of Cl_2H^+ and FClH^+ Ions”.
Journal of Physical Chemistry, **1998**, 102, 10560.

- 22) F. Cacace, G. de Petris, F. Pepi, M. Rosi and A. Sgamellotti
“Gaseous Cl_3^+ and Cl_2F^+ Cations. A Joint Mass Spectrometric and Theoretical Study.
Rapid Communication in Mass Spectrometry, **1998**, 12, 1911.
- 23) F. Cacace, G. de Petris, F. Pepi, M. Rosi and A. Troiani
“Gaseous Trihalogen Cations. Formation, Structure and Reactivity of Cl_3^+ and Cl_2F^+
Ions from a Joint ab Initio and FT-ICR Study”.
Journal of Physical Chemistry, **1999**, 103, 2128.
- 24) G. de Petris, F. Pepi and M. Rosi
“Gas-phase Reactions of Protonated Chlorine, Cl_2H^+ , with $\text{H}_2(\text{D}_2)$ and CH_4 . A Mass
Spectrometric and Theoretical Study”.
Chem. Phys. Letters, **1999**, 304, 191.
- 25) F. Cacace, G. de Petris, F. Pepi, M. Rosi and A. Troiani
“Gaseous $[\text{CH}_3\text{-Cl-Cl}]^+$ Ions from the Reaction of Methane with Cl_3^+ , the First
Example of a New Dihalogenation Process: Formation and Characterization of
 CH_3Cl_2^+ Isomers by Experimental and Theoretical Methods”.
Chem. Eur. J., **1999**, 5, 9, 275
- 26) F. Cacace, G. de Petris, F. Pepi and A. Troiani
“Experimental Detection of Hydrogen Trioxide”.
Science, **1999**, 285, 81.
- 27) F. Cacace, G. de Petris, F. Pepi, M. Rosi and A. Sgamellotti
“Ionization of Ozone/Chlorofluorocarbon Mixtures in Atmospheric Gases: Formation
and Dissociation of $[\text{CHX}_2\text{O}_3]^+$ Complexes (X = Cl, F).”
Angewandte Chemie Int. Ed. Engl., **1999**, 38, 16, 2408.
- 28) M. Aschi, M. Attinà, F. Cacace, A. Cartoni and F. Pepi
“A Mass Spectrometric and Computational Study of Gaseous Peroxynitric acid and
 $(\text{HOONO}_2)\text{H}^+$ Protomers”.
International Journal of Mass Spectrometry, **2000**, 195/196, 1.

- 29) F. Bernardi, F. Cacace, G. de Petris, F. Pepi, I. Rossi and A. Troiani
“Gas-Phase Reaction of Nitronium Ions with Acetylene and Ethylene: An Experimental and Theoretical Study”.
Chem. Eur. J., **2000**, 6, 3, 537.
- 30) F. Cacace, G. de Petris, F. Pepi and A. Troiani
“Direct Experimental Evidence for the $\text{H}_2\text{O}^+\text{O}_2^-$ Charge Transfer Complex: Crucial Support to Atmospheric Photonucleation Theory”.
Angewandte Chemie Int. Ed. Engl., **2000**, 39, 2, 367.
- 31) F. Cacace, G. de Petris, F. Pepi, M. Rosi and A. Troiani
“Ionization of Ozone/Chlorofluorocarbon mixtures in Atmospheric Gases: Formation and Remarkable Dissociation of $[\text{CHXYO}_3]^+$ Complexes (X=H, Cl, F; Y=Cl,F).
Chem. Eur. J., **2000**, 6, 14, 2572.
- 32) N. Wade, C. Evans, F. Pepi and R.G. Cooks
“Collisions of Silylium Cations with Hydroxyl-Terminated and other Self-Assembled Monolayer Surfaces: Reactions, Dissociation and Surface Characterization.”
Journal of Physical Chemistry, **2000**, 104, 11230.
- 33) F. Cacace, M. Attinà, A. Cartoni, F. Pepi
“Gas-phase fluorination of acetylene by XeF^+ : Formation, structure and reactivity of $\text{C}_2\text{H}_2\text{F}^+$ isomeric ions”
Chem. Phys. Letters, **2001**, 339, 71-76.
- 34) Chris Evans, Nathan Wade, Federico Pepi, Greg Strossman, Tom Schuerlein, and R.Graham Cooks
“Surface Modification and Patterning Using Low-Energy Ion Beams: Si-O Bond Formation at the Vacuum/Adsorbate Interface”
Analytical Chemistry; **2002**; 74(2); 317-323.
- 35) Pepi, Federico; Ricci, Andreina; Di Stefano, Marco; Rosi, Marzio; D'Arcangelo, Giuseppe.
“Thionyl Fluoride from Sulfur Hexafluoride Corona Discharge Decomposition: Gas-Phase Chemistry of $[\text{SOF}_2]\text{H}^+$ Ions.”
Journal of Physical Chemistry A **2002**, 106(40), 9261-9266.
- 36) F. Pepi, A. Ricci, M. Rosi
“Gas-Phase Chemistry of NH_xCl_y^+ Ions.III. Structure, Stability and Reactivity of Protonated Trichloramine”
Journal of Physical Chemistry A, **2003**, 107, 2085-2092.

- 37) F. Pepi, A. Ricci, M. Di Stefano, Marzio Rosi.
“Sulfur hexafluoride corona discharge decomposition: gas-phase ion chemistry of SOF_x^+ ($x = 1-3$) ions.”
Chem. Phys. Letters, **2003**, 381,168.
- 38) F. Pepi, A. Ricci, M. Di Stefano, Marzio Rosi.
“The Diphosphate Monoanion in the Gas-Phase. A Joint Mass Spectrometric and Theoretical Study.”
Chemistry- A European Journal, **2004**, 10,840.
- 39) F. Pepi, A. Ricci, M. Di Stefano, Marzio Rosi.
“Gaseous $\text{H}_5\text{P}_2\text{O}_8^-$ ions. A theoretical and experimental study on the hydrolysis and synthesis of diphosphate ion”
Chemistry- A European Journal, **2004**, 10, 5706.
- 40) F. Pepi, A. Ricci, M. Di Stefano, Marzio Rosi.
“Gas-Phase Protonation of Trifluoromethyl Sulphur Pentafluoride”
Phys. Chem. Chem. Phys., **2005**, 7, 1181.
- 41) F. Pepi, A. Ricci, M. Rosi
“Gas-Phase Ion Chemistry of BF_3/HN_3 Mixtures: The First Observation of $[\text{BF}_n\text{N}_x\text{H}_{n-1}]^+$ ($n = 1,2 ; x = 1,3$) Ions”
Journal of Physical Chemistry B , **2006**, 110, 4492.
- 42) F. Pepi, A. Ricci, M. Di Stefano, Marzio Rosi.
“Metal Alkali Coordination Effect on Diphosphate Gas Phase Ion Chemistry. The $\text{MH}_2\text{P}_2\text{O}_7^-$ Ions”
Chemistry- A European Journal, **2006**, 12, 2787.
- 43) F. Pepi, A. Ricci, S. Garzoli and M. Rosi
“Gas-Phase Ion Chemistry of BF_3/NH_3 Mixtures”
Journal of Physical Chemistry A , **2006**, 110, 12427.
- 44) F. Pepi, V. Barone, P. Cimino and A. Ricci.
“Gas Phase Ion Chemistry of Diphosphate Anions as a Tool to Investigate the Intrinsic Requirements of Phosphate Esters Enzymatic Reactions. The $[\text{M}^I\text{M}^{II}\text{HP}_2\text{O}_7]^-$ Ions”
Chemistry- A European Journal, **2007**, 13, 2096-2108.
- 45) F. Pepi, A. Ricci, A. Tata, G. Favero, M. Fiasconi, S. Delle Noci and F. Mazzei
“Soft landed protein voltammetry”
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- 46) F. Pepi, A. Tata, G. Favero, M. Frascioni, F. Mazzei, N. Tuccitto, A. Licciardello
“Soft landed protein voltammetry: A Tool for Redox Protein Characterization”
Analytical Chemistry, **2008**, 80(15), 5937-5944.
- 47) F. Pepi, A. Tata, S. Garzoli and M. Rosi
“Gas-Phase Ion Chemistry of BF₃/CH₄ Mixtures: Activation of Methane by BF₂⁺ ions”
Chemical Physics Letters, **2008**, 461(1-3), 21-27.
- 48) F. Pepi F; A. Ricci ; A. Fiorentino; S. Piccolella; A. Golino; B. D'Abrosca; M. Letizia; P. Monaco
Furofuranic glycosylated lignans: a gas-phase ion chemistry investigation by tandem mass spectrometry
Rapid Communications in Mass Spectrometry, **2008**, 21, 3382-3392
- 49) F. Pepi, A. Tata, G. Favero, M. Frascioni, F. Mazzei.
“Electron-Transfer Kinetics of Microperoxidase-11 Covalently Immobilised onto the Surface of Multi-Walled Carbon Nanotubes by Reactive Landing of Mass-Selected Ions”
Chemistry- A European Journal, **2009**, 15, 7359 – 7367
- 50) F. Pepi, S. Garzoli, A. Tata, P. Giacomello,
“Low-Energy Collisionally Activated Dissociation Of Pentose-Borate Complexes”,
International Journal of Mass Spectrometry, **2010**, 289, 76-83.
- 51) F. Pepi, A. Ricci, S. Piccolella, A. Fiorentino, B. D'Abrosca, P. Monaco.
“A tandem mass spectrometric investigation of the low-energy collision-activated fragmentation of neo-clerodane diterpenes. *Rapid Communication in Mass Spectrometry*, **2010**, 24, 1543-1556
- 52) F. Pepi, A. Tata, S. Garzoli, P. Giacomello, R. Ragno, A. Patsilnakos, M. Di Fusco, A. D'Annibale, S. Cannistraro, C Baldacchini, M. Frascioni, G. Favero, F. Mazzei “ “Chemically Modified Multiwalled Carbon Nanotubes Electrodes with Ferrocene Derivatives through Reactive Landing” *The Journal of Physical Chemistry C* , **2011**, 115, 4863-4871.
- 53) A. Ricci, S. Piccolella, , F. Pepi , A. Patsilnakos, R. Ragno, S. Garzoli, P. Giacomello Gas-phase basicity of 2-furaldehyde. *Journal of Mass Spectrometry*, **2012**, vol. 47, p. 1488-1494.
- 54) A. Ricci, S. Piccolella, F. Pepi, S. Garzoli, P. Giacomello. (2013). The mechanism of 2-furaldehyde formation from D-xylose dehydration in the gas phase. A tandem mass spectrometric study, . *Journal of the American Society for Mass Spectrometry*, **2013**, vol 24, 1082-1089.
- 55) Pacelli S., P. Paolicelli, F. Pepi, S. Garzoli, A. Polini, B. Tita, A. Vitalone, M.A. Casadei
“Gellan gum and polyethylene glycol dimethacrylate double network hydrogels with improved mechanical properties” *Journal of Polymer Research*, **2014**, 21, 1-13.

- 56) L. Civitelli, S. Panella, M.E. Marcocci, A. De Petris, S. Garzoli, F. Pepi, E. Vavala, R. Ragno, L. Nencioni, A.T. Palamara, L. Angiolella
“In vitro inhibition of herpes simplex virus type 1 replication by *Mentha suaveolens* essential oil and its main component piperitenone oxide” *Phytomedicine*, **2014**, 21, 857-865.
- 57) A. Troiani, S. Garzoli, F. Pepi, A. Ricci, M. Rosi, C. Salvitti, G. de Petris, “All the 2p-block elements in a molecule: experimental and theoretical studies of FBNCO and FBNCO+” *Chemical Communications*, **2014**, 50, 13900-13903.
- 58) A. Stringaro, E. Vavala, M. Colone, F. Pepi, G. Mignogna, S. Garzoli, S. Cecchetti; R. Ragno, L. Angiolella “Effects of mentha suaveolens essential oil alone or in combination with other drugs in candida albicans” *Evidence-based Complementary and Alternative Medicine*, **2014**, article ID 125904, 9 pages.
- 59) A. Ricci, B. Di Rienzo, F. Pepi, A. Troiani, S. Garzoli, P. Giacomello: “Acid-catalysed glucose dehydration in the gas phase: a mass spectrometric approach” *Journal of Mass Spectrometry*, **2015**, 50, 228–234.
- 60) A. Ricci, B. Di Rienzo, F. Pepi, A. Troiani, S. Garzoli, C. Salvitti, P. Giacomello: “A mass spectrometric study of the acid-catalysed D-fructose dehydration in the gas phase.” *Carbohydrate Research*, **2015**, 413, 145–150.
- 61) S. Garzoli, A. Pirolli, E. Vavala, A. Di Sotto, G. Sartorelli, M. Božović, L. Angiolella, G. Mazzanti, F. Pepi, R. Ragno
“Multidisciplinary Approach to Determine the Optimal Time and Period for Extracting the Essential Oil from *Mentha suaveolens* Ehrh” *Molecules*, **2015**, 20 (6), 9640-9655.
- 62) F. Scazzocchio, S. Garzoli, C. Conti, C. Leone, C. Renaioli, F. Pepi, L. Angiolella
“Properties and limits of some essential oils: chemical characterisation, antimicrobial activity, interaction with antibiotics and cytotoxicity” *Natural product research*, **2016**, 30, 1909-1918.
- 63) E. Vavala, C. Passariello, F. Pepi, M. Colone, S. Garzoli, R. Ragno, A. Pirolli, A. Stringaro, L. Angiolella
“Antibacterial activity of essential oils mixture against PSA”, *Natural product research*, **2016**, 30, 412-418.
- 64) G. Forte, I. Chiarotto, I. Giannicchi, M. A. Loreto, A. Martinelli, R. Micci, F. Pepi, S. Rossi, C. Salvitti, A. Stringaro, L. Tortora, S. Vecchio Cipriotti, M. Feroci
“Characterization of naproxen–polymer conjugates for drug-delivery” *Journal of Biomaterials Science, Polymer Edition*, **2016**, 27 (1), 69-85
- 65) D. De Vita, F. Pandolfi, L. Ornano, M. Feroci, I. Chiarotto, I. Sileno, F. Pepi, R. Costi, R. Di Santo, L. Scipione
“New N, N-dimethylcarbamate inhibitors of acetylcholinesterase: design synthesis and biological evaluation” *Journal of Enzyme Inhibition and Medicinal Chemistry*, **2016**, 1-8
- 66) A. Ricci, F. Pepi, P. Cimino, A. Troiani, S. Garzoli, C. Salvitti, B. Di Rienzo, V. Barone
“Vitamin C: An Experimental and Theoretical Study on the Gas Phase Structure and Ion Energetics of Protonated Ascorbic Acid” *Journal of Mass Spectrometry* **2016**, **51 (12)**, **1146-1151**
- 67) S. Guizzo, C. Tortolini, F. Pepi, F. Leonelli, F. Mazzei, F. Di Turo, G. Favero

“Application of microemulsions for the removal of synthetic resins from paintings on canvas”
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“Essential oil extraction, chemical analysis and anti-Candida activity of *Calamintha nepeta* (L.) Savi subsp. *glandulosa* (Req.) Ball—New approaches” *Molecules*, **2017**, 22, 203.