

Lista de Publicações Científicas (atualizado em 17/03/2018)

Sergio Pilling

A. Artigos Científicos Publicados (mais recente primeiro)

2018 (com aceitos e submetidos)

64. (submetido em 26/fev/2018) Freitas F. M., Pilling S., (2018) PCCP, Study of methanol ice bombarded by ionizing agents in simulation of astrophysical environments inside laboratory.

63. (submetido em fev/2018) Rocha W.R.M., Pilling S. (2018) MNRAS. The role of external FUV irradiation in the survival of astrophysical ices on Elias 29.

62. (submetido em jan/2018) Rocha W.R.M., Pilling S. (2018) MNRAS. Tracking the evolutionary class of protostars by the abundances of frozen molecules.

61. (aceito) Bonfim V. S., Pilling S., (2018) Proceedings IAU Symposium 332 (Astrochemistry). The influence of chemical environment on the infrared spectra of embedded molecules in astrophysical ices

60. (aceito) Pilling S., (2018) Proceedings IAU Symposium 332 (Astrochemistry). Processing of astrophysical ices by soft X-rays and swift ions.

59. (aceito) Rachid M. G.; Faquine K.; Pilling S., (2018) Proceedings IAU Symposium 332 (Astrochemistry). Destruction of C₂H₄O₂ isomers in ice-phase by X-rays: Implication on the abundance of acetic acid and methyl formate in the interstellar medium.

2017

58. Vasconcelos, F. A. Pilling S., Rocha W. R. M., Rothard, H.; Boduch, P. (2017) ApJ, 850, 174, Energetic Processing of N₂:CH₄ Ices Employing X-Rays and Swift Ions: Implications for Icy Bodies in the Outer Solar System.

57. Bonfim V. S., Castilho R. B., Baptista L., Pilling S., (2017) PCCP, Theoretical and experimental investigation of SO₃ molecule formation in astrophysical environments.

56. Vasconcelos, F. A. Pilling S., Rocha W. R. M., Rothard, H. ; Boduch P. (2017) PCCP, 19, 24154, Radiolysis of N₂-rich astrophysical ice by swift Oxygen ions: Implication for space weathering of outer solar system bodies.

55. Vasconcelos, F. A. Pilling S., Rocha W. R. M.; Rothard, H. ; Boduch P., Ding J. J. (2017) PCCP, 19, 12845. Ion irradiation of pure and amorphous CH₄ ice relevant for astrophysical environments.

54. Rachid G., Faquine K., Pilling S. (2017) PSS, 149, 83. Destruction of C₂H₄O₂ isomers in ice-phase by X-rays: Implication on the abundance of acetic acid and methyl formate in the interstellar medium.

53. Almeida, G. C.; Pilling, S.; de Barros, A. L. F. ; Da Costa, C. P. ; Pereira, R. C.; da Silveira, E. F.(2017) MNRAS, 471, 1330, Processing of N₂O ice by fast ions: Implications on nitrogen chemistry in cold astrophysical environments.

52. Rocha W. R. M., Pilling S., de Barros; A. L., Andrade D. P. P., Rothard H., Boduch P., (2017) MNRAS, 464, 754, Infrared complex refractive index of astrophysical ices exposed to cosmic rays simulated in the laboratory.

2015

51. Bossa J.-B., Maté B., Fransen C., Cazaux S., Pilling S., Rocha W.R.M., Ortigoso J., Linnartz H., (2015), The Astrophysical Journal, 814, 47, Porosity and band-strengths measurement of multi-phase composite ices using mid-infrared optical constants and extended effective medium approximations

50. Pilling, S., Bergantini, A., Vasconcelos F.A., Rocha W. R. M. (2015) JPCS, 635, 112104, Triggering photochemical processes in frozen extraterrestrial worlds by soft X-rays.

49. Bonfim, V. S, Castilho R. B., Baptista L., Pilling, S. (2015) JPCS, 635, 102012, Theoretical and experimental investigation for SO production in SO -rich astrophysical environments.

48. Vasconcelos, F. A., Pilling, S. (2015) JPCS, 635, 022095, Production of N from irradiation of the N -rich ices using soft X-rays and cosmic rays analog.

47. Pilling S., Bergantini A., (2015) The Astrophysical Journal, 811, 151, The effect of broad band soft X-rays in SO₂-containing ices: Implication on the photochemistry of ices towards young stellar objects.

46. Santos A.C.F., Pilling S., Almeida D.P. (2015) J. Elect. Spec. Rel. Phenom., 2013, 31. Charge distribution of Kr ions produced upon photoionization around the 2s edge

45. Santos A.C.F., Pilling S., Almeida D. P. (2015) Physics Procedia, 66, 46. Production of Multiply Charged Kr Ions by Synchrotron Radiation.

44. Boduch P., Dartois E., de Barros A.L., Silveira E.F., Domaracka A., Lv X.-Y., Palumbo M. E., Pilling S., Rothard H., Duarte E. S., Strazzulla G. (2015) JPCS, 629, 012008. Radiation effects in astrophysical ices.

43. Rocha W.R.M., Pilling, S. (2015) *The Astrophysical Journal*, 803, 18. Computational modeling of the class I low-mass protostar Elias 29 applying optical constants of ices processed by high energy cosmic ray analogs.

2014

42. Bergantini A., Pilling S., Nair B., Mason N. J., Fraser H. (2014) *Astronomy & Astrophysics*, 570, A120. Processing of simulated Enceladus surface ice by energetic electrons.

41. De Castilho R. B., Ramalho T.C., Nunez C.V., Coutinho L.H., Santos A.C.F., Pilling S., Lago A. F., Silva-Moraes M.O., De Souza G. G. B. (2014) *Rapid Communications in Mass Spectrometry*, 28, 1769. Single and double ionization of the camphor molecule excited around the C 1s edge.

40. Almeida G. C., Pilling S., Andrade D.P. P., Castro N.L.S., Mendoza, E., Boechat-Roberty H. M., Rocco M. L. M. (2014) *Journal of Physical Chemistry. C*, 118, 6193, Photodesorption and Photostability of Acetone Ices: Relevance to Solid Phase Astrochemistry.

39. De Castilho R. B., Nunez C.V., Lago A.F., Santos A.C. F., Coutinho L. H., Lucas C.A., Pilling S., Silva M., de Souza G. G. B. (2014) *Journal of Electron Spectroscopy and Related Phenomena*, 192, 614. Excitation and ionic fragmentation of the carvone molecule (C₁₀H₁₄O) around the O 1s edge.

38. Rocha W.R.M., Pilling S. (2014) *Spectrochimica Acta. Part A*, 123, 436. Determination of optical constants n and k of thin films from absorbance data using Kramers-Kronig relationship.

37. Bergantini A., Pilling S., Rothard H., Boduch P., Andrade D. P. P. (2014) *Monthly Notices of the Royal Astronomical Society*, 437, 2720. Processing of formic acid-containing ice by heavy and energetic cosmic ray analogues

36. Pilling S., Nair B.G., Escobar A., Fraser H., Mason N. (2014) *The European Physical Journal. D* . 68. 58 The temperature effect on the glycine decomposition induced by 2 keV electron bombardment in space analog conditions

35. Portugal W., Pilling S., Boduch P., Rothard H., Andrade D.P. P. (2014) *Monthly Notices of the Royal Astronomical Society*, 441, 3209. Radiolysis of amino acids by heavy and energetic cosmic ray analogues in simulated space environments: alpha-glycine zwitterion form

34. de Barros A. L. F., Boduch P., Pilling S., da Silveira E. F., Domaracka A., Rothard H. (2014) *Monthly Notices of the Royal Astronomical Society*, 438, 2026. Processing of low content carbon interstellar ice analog by cosmic rays: Implications on the chemistry around oxygen-rich stars.

2013

33. Portugal W., Pilling S., Andrade, D. P.P., Boduch P., Rothard H. (2013). *Revista UNIVAP*, 19, 58. Radiólise de aminoácido sob ação de íons pesados: Implicações em Astroquímica e Astrobiologia.

32. Andrade D. P. P., de Barros A.L.F., Pilling S., Domaracka A., Rothard H., Boduch P., da Silveira E. F. (2013) *Monthly Notices of the Royal Astronomical Society*, 430, 787. Chemical reactions induced in frozen formic acid by heavy ion cosmic rays.

31. Bergantini A., Andrade D.P.P., Pilling S., Arantes C., Pontes F.C., Boechat-Roberty H.M., Rocco M.L.M. (2013) *Advances in Space Research*, 52, 1201. Desorption from Methanol Ice Induced by Electrons from Solar Wind or Magnetospheres.

30. Wolff W., Sigaud L., Montenegro E.C., de Jesus V., Cavasso-filho R.L., Pilling S., Santos A.C.F. (2013) *The Journal of Physical Chemistry A*, 117, 56. Ionization and Fragmentation of Methane Induced by 40 eV to 480 eV Synchrotron Radiation: From Valence to Beyond Core Electron Ionization.

29. Pilling S., Mendes L.A.V., Bordalo V., Mejía F. C., Ponciano C. R., da Silveira E. F. (2013) *Astrobiology*, 13, 79. The Influence of Crystallinity Degree on the Glycine Decomposition Induced by 1 MeV Proton Bombardment in Space Analog Conditions.

2012

28. Pilling S., Andrade D.P.P., da Silveira E.F., Rothard H., Domaracka A., Boduch P. (2012) *Monthly Notices of the Royal Astronomical Society*, 423, 2209. Formation of unsaturated hydrocarbons in interstellar ice analogues by cosmic rays.

27. Arruda M.S., Marinho R.R.T., Maniero A.M., Mundim M.S.P., Mocellin A., Pilling S., de Brito A.N., Prudente F.V. (2012) *The Journal of Physical Chemistry A*, 116, 6693. Theoretical-Experimental Study of Formic Acid Photofragmentation in Valence Region.

26. Lv, X.-Y., de Barros A. L. F. ; Boduch P., Bordalo V., da Silveira E.F. ; Domaracka A., Fulvio D., Hunniford C.A., Langlinay T., Mason N. J., McCullough R.W., Palumbo M.E., Pilling S., Rothard H., Strazzulla G. (2012), *Astronomy & Astrophysics*, 546, A81. Implantation of Multiply Charged Carbon Ions in Water Ice.

2011

25. Pilling S, Andrade D.P.P., do Nascimento E.M., Marinho R.T., Boechat-Roberty H.M.; Coutinho L.H., de Souza, G.G.B., De Castilho R.B., Cavasso-filho R.L., Lago A.F., de Brito A.N. (2011) *Monthly Notices of the Royal Astronomical Society*, 411, 2214. Photostability of gas- and solid-phase biomolecules within dense molecular clouds due to soft X-rays.

24. Pilling S., Seperuelo-Duarte E., Domaracka A., Rothard H., Boduch P., Silveira E.F. (2011) *Physical Chemistry Chemical Physics*, 13, 15755. Radiolysis of astrophysical ice analogs by energetic ions: the effect of projectile mass and ice temperature.

23. Pilling S., Baptista L., Boechat-Roberty H.M., Andrade D.P.P. (2011). *Astrobiology*, 11, 883. Formation Routes of Interstellar Glycine Involving Carboxylic Acids: Possible Favoritism Between Gas and Solid Phase.

22. Fantuzzi F., Pilling S., Santos A.C.F., Baptista L., Rocha A.B., Boechat-Roberty H.M. (2011) *Monthly Notices of the Royal Astronomical Society*, 417, 2631. Photodissociation of methylformate in circumstellar environment: stability under soft X-rays.

21. Boduch, P., da Silveira, E.F., Domaracka A., Gomis O., Lv X.Y., Palumbo M.E., Pilling S., Rothard. H., Seperuelo Duarte, E., Strazzulla G. (2011) *Advances in Astronomy*, 2011, 1, Article ID 32764. Production of Oxidants by Ion Bombardment of Icy Moons in the Outer Solar System.

2010

20. Pilling S., Seperuelo Duarte E., da Silveira E.F., Balanzat E., Rothard H., Domaracka A., Boduch P. (2010) *Astronomy & Astrophysics*, 509, A87. Radiolysis of ammonia-containing ices by energetic, heavy, and highly charged ions inside dense astrophysical environments.

19. Paulino-Lima I.G., Pilling S., Janot-Pacheco E., de Brito A.N., Barbosa J.A.R.G., Leitão A.C., Lage C.A.S. (2010) *Planetary and Space Science*, 58, 1180. Laboratory simulation of interplanetary ultraviolet radiation (broad spectrum) and its effects on *Deinococcus radiodurans*.

18. Domaracka A., Seperuelo Duarte E., Boduch P., Rothard H., Ramillon J.M., Dartois E., Pilling S., Farenzena L.S., da Silveira, E.F. (2010) *Nuclear Instruments & Methods in Physics Research. Section B, Beam Interactions with Materials and Atoms*, 268, 2960. Infrared study of astrophysical ice analogues irradiated by swift nickel ions.

17. Pilling S., Seperuelo-Duarte E., Domaracka A., Rothard H., Boduch P., da Silveira E.F. (2010) *Astronomy & Astrophysics*, 523, A77. Radiolysis of H₂O:CO ices by heavy energetic cosmic ray analogs.

2009

16. Pilling S., Andrade D. P.P., Neto A.C., Rittner R., Brito A.N. (2009) *The Journal of Physical Chemistry A*, 113, 11161. DNA nucleobase synthesis at Titan atmosphere analog by soft X-rays.

15. Andrade D.P.P., Boechat-Roberty H.M., Pilling S., da Silveira E.F., Rocco M.L.M. (2009) *Surface Science*, 603, 3301. Positive and negative ionic desorption from condensed formic acid photoexcited around the O 1s-edge: Relevance to cometary and planetary surfaces.

14. Boechat-Roberty H.M., Neves R., Pilling S., Lago A.F., de Souza G.G.B., (2009) *Monthly Notices of the Royal Astronomical Society*, 394, 810. Dissociation of the benzene molecule by ultraviolet and soft X-rays in circumstellar environment.

2008

13. Pilling S., Andrade D.P.P., De Castilho, R. B., Cavasso-Filho R. L., Lago A.F., Coutinho L. H., De Souza G.G.B., Boechat-Roberty H.M., de Brito A.N., (2008) *Proceedings of the International Astronomical Union*, 4, 371. Survival of gas phase amino acids and nucleobases in space radiation conditions.

12. Rodrigues A.M.N., Pilling S., Boechat-Roberty H. M., Souza G.G.B., Santos A.C.F., (2008) *Proceedings of The Eso Lisbon Aveiro Workshop On Precision Spectroscopy In Astrophysics*, 1, 279. Production of H₃⁺ and D₃⁺ from (CH₃)₂CO and (CD₃)₂CO in SFRs.

11. Andrade D.P.P., Boechat-Roberty H.M., da Silveira E.F., Pilling S., Iza P., Martinez R., Farenzena L.S., Homem M.G.P., Rocco M.L. (2008) *Journal of Physical Chemistry C*, 112, 11954. Astrophysical Icy Surface Simulation under Energetic Particles and RadiationField in Formic Acid.

2007

10. Pilling S., Andrade D.P.P., Neves R., Rodrigues A.M.N., Santos A.C.F., Boechat-Roberty H.M., (2007) *Monthly Notices of the Royal Astronomical Society*, 375, 1488. Production of H₃⁺ via photodissociation of organic molecules in interstellar clouds.

9. Pilling S., Neves R., Santos A.C.F., Boechat-Roberty H.M., Santos A.C.F. (2007) *Astronomy & Astrophysics*, 464, 393. Photo-dissociation of organic molecules in star-forming regions III: Methanol.

8. Cavasso-filho R.L., Homem M.G.P., Lago A.F., Pilling S., de Brito A.N. (2007) *Journal of Electron Spectroscopy and Related Phenomena*, 156, 168. Delivering high purity vacuum ultraviolet photons at the Brazilian toroidal grating monochromator (TGM) beamline.

7. Pilling S., Boechat-Roberty H.M., Santos A.C.F., Souza G.G.B., de Brito A.N. (2007) *Journal of Electron Spectroscopy and Related Phenomena*, 156, 139. Ionic yield and dissociation pathways from soft X-ray multi-ionization of acetic acid.

6. Pilling S., Boechat-Roberty H.M., Santos A.C.F., Souza G.G.B., (2007) *Journal of Electron Spectroscopy and Related Phenomena*, 155, 70. Ionic yield and dissociation pathways from soft X-ray double-ionization of alcohols.

5. Pilling S., Lago A. F., Coutinho L.H., de Castilho R.B., Souza G.G.B., de Brito A. N. (2007) *Rapid Communications in Mass Spectrometry*, 21, 3646. Dissociative photoionization of adenine following valence excitation.

2006

4. Pilling S., Boechat-Roberty H.M., Souza G.G.B., Santos A.C.F., Santana M.M., de Barros A.L.F., Wolff W., Faria N.V.C., (2006) *Monthly Notices of the Royal Astronomical Society*, 372, 1379. Ionization and dissociation of cometary gaseous organic molecules by solar wind particles - I. Formic acid.

3. Pilling S., Boechat-Roberty H.M., Souza G.G.B., Santos A.C.F., Santana M.M., de Barros A.L.F., Wolff W., Faria N.V.C., (2006) *Brazilian Journal of Physics*, 36, 538. Ionization and dissociation of the formic acid molecule by protons and electron.

2. Pilling S., Santos, A.C.F., Boechat-Roberty H.M. (2006), *Astronomy & Astrophysics*, 449, 1289. Photo-dissociation of organic molecules in star-forming regions II: Acetic acid.

2005

1. Boechat-Roberty H.M., Pilling S., Santos A.C.F. (2005), *Astronomy & Astrophysics*, 438, 915. Destruction of formic acid by soft x-rays in star-forming regions.

B. Capítulos de Livros (mais recente primeiro)

4. Pilling S., Andrade D.P.P. (2012) *Employing Soft X-rays in Experimental Astrochemistry*. In: InTech Open Access Publisher. (Org.). *X-ray Spectroscopy*. Rijeka, Croatia: InTech Open Access Publisher, p. 185-218.

3. Boechat-Roberty, H.M., Neves R., Pilling S., Lago A.F., Souza G.G.B. (2010) Benzene Molecule is Destroyed by Ultraviolet and soft X-rays in Circumstellar Environment in Activity Report LNLS 2009 Science Highlights. Campinas: Editora Cubo, p. 42-47.

2. Pilling S, Andrade D.P.P., Rodriguez A.M.N.F., Neves R., Santos A.C.F. Boechat-Roberty H.M., (2007) Photoproduction of H_3^+ in Interstellar Clouds. in Activity Report LNLS 2006 Science Highlights. Campinas: Editora Cubo, p. 44-47.

1. Boechat-Roberty H.M., Pilling S, Santos A.C.F. (2006) Organic Molecules in Star-Forming Regions in Activity Report LNLS 2005 Science Highlights. Campinas: Editora Cubo, p. 38-41.

C. Artigos de Divulgação (mais recente primeiro)

2. Pilling, S.; Entre as Estrelas: O que existe entre as estrelas? *Ciência Hoje das Crianças (CHC)*, Rio de Janeiro, v. 189, pg. 8 - 11, 15 abr. 2008.

1. Pilling, S.; Como funciona o telescópio? *Ciência Hoje das Crianças (CHC)*, Rio de Janeiro, , v. 178, pg. 28 - 28, 23 abr. 2007.