

Curriculum Vitae of João Manuel Marques Rodrigues

João M. Marques Rodrigues was born in Albergaria-a-Velha, Portugal, on August 5, 1983.

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1. Academic education and degrees

- Mar 16 – ... Research BI grant on synthesis and characterization of functional metal–organic frameworks, MOFs. (Research fellowship reference: PTDC/CTM/101538/2008), CICECO, Department of Chemistry, University of Aveiro, Portugal.
- Jan 12 – Dec 15 Ph.D. in Organic Chemistry, Department of Chemistry, University of Aveiro, Portugal (approved by unanimity).
- Aug 10 – Dec 11 Research BI grant on Porphyrinic Sensors (Research fellowship reference: PTDC/CTM/101538/2008), Department of Chemistry, University of Aveiro, Portugal.
- Oct 09 – Dec 10 Bologna Master Degree in Organic Chemistry and Natural Products, Department of Chemistry, University of Aveiro (final mark: 14/20).
- Apr 09 – Jul 10 Research BI grant on Porphyrins Aggregates (Research fellowship reference: PTDC/QUI/64112/2006), Department of Chemistry, University of Aveiro, Portugal.
- Oct 01 – Jul 07 Academic Degree in Industrial Chemistry, Scientific Field – Chemist Control of Quality, Department of Chemistry, Faculty of Sciences and Technology of University of Coimbra (final mark: 14/20).

2. Company environment

- Out 07 – Mar 08 Trainee grant – research and development of the product. “Development and production of tantalum capacitors”, KEMET – Electronics S.A., Portugal.
- Oct 06 – Jul 07 Trainee grant – research and development. “Study of the influence of suspension agents in thermal stability of PVC”, CIRES – Companhia Industrial de Resinas Sintéticas, Portugal.

3. Supervising experience and Teaching activities

3.1. Present supervising or co-supervising

Co-supervising undergraduate students in their projects, to obtain the Biochemistry or Biotechnology degree, at the Chemistry Department, University of Aveiro, 2012-2015

3.2. Teaching activities

- Oct 12 – Feb 13 Laboratory monitor teaching in the discipline “From Molecule to Man” in Biomedical Sciences degree, University of Aveiro.
- Summer 09/10 Orientation of secondary school students on the Summer Academy at Chemistry Department, University of Aveiro.

4. Domain of specialization and other skills/activities

4.1 Domain of specializations

The domain of specialization is in Organic Chemistry, namely in synthesis of porphyrins and phthalocyanines able to form organized molecular aggregates that may be used in molecular recognition. Presently, his research activity is focused on the synthesis of new organic compounds (tetrapyrrolic macrocycles) and nanomaterials. Anion binding studies are made to evaluate this new compounds as potential anion sensors.

4.2. Other skills/activities

- Purification proficiency in: preparative TLC; flash chromatography (normal and reversed phase), membrane dialysis and HPLC.
- Ability to use spectroscopic equipment's of analysis such as UV-Vis and fluorimeter equipment's.
- Ability to characterize several compounds, mainly by NMR, mono and bi-dimensional, mass spectrometry, e.g.
- Experience in microwave synthesis.
- Participation in events and laboratory experiments demonstrations for the high and elementary school students.
- Participation in several *Courses and Scientific & Training Events*:
 - “*Calibration and Quantification*” (University of Coimbra)
 - “*Basic Notions of Statistic*” (University of Coimbra)
 - “*Water Waste Treatment*” (University of Coimbra)
 - “*Process Engineering Systems*” (University of Coimbra)
 - “*Characteristics and PVC Properties Process*” (CIRES, S.A.).
 - “*Pedagogical Aptitude Training Course*” - IEFP certified trainer (CAP).
 - “*Nanomaterials and Hybrid Materials*” (University of Aveiro)
 - “*Molecular photobiophysics: Actual topics and future problems - A short introduction*” (University of Aveiro)

5. Main scientific area of research

Organic Chemistry and Materials, Supramolecular Chemistry, Anion binding studies.

5.1. Present research interests

Organic Chemistry: Development of new porphyrins and phthalocyanines derivatives with potential of anion binding applications.

Nanotechnologies: Development of new hybrids materials for future anion binding studies.

6. Research stages

Three month of a Doc work on derivatization and functionalization of porphyrin-[C₆₀]fullerene-DNA origami for energy transfer and photonic devices with Prof. Takashi Morii (Institute of Advanced Energy, Kyoto University, Uji, Kyoto 611-0011 Japan; email: t-morii@iae.kyoto-u.ac.jp), July-September, 2012.

Collaboration with Dr. Rogério Nunes Nogueira group lab during over than one year with the study of immobilization of organic chemosensors in optical fiber Bragg grating (FBG). These FBG besides several unique properties have the advantage that can be integrated into various structures and/or equipment. (Institute of Telecommunications, University of Aveiro, email: rnogueira@av.it.pt), 2013-2015

7. Publications

7.1. Thesis

- 03 Ph.D. Degree in Organic Chemistry – “*Síntese de sensores, funcionalização de nanopartículas e fibras óticas para reconhecimento de aniões*”, University of Aveiro, **2015**.
- 02 Bologna Master’s Degree in Chemistry – “*Sistemas supramoleculares baseados em porfirinas: síntese e propriedades*”, University of Aveiro, **2010**.
- 01 BSc Degree in Industrial Chemistry – “*Optimização das condições de fabrico de Polímeros Termoplásticos – Influência dos agentes de suspensão na Estabilidade Térmica do PVC*”, University of Coimbra, **2007**.

7.2. Papers in international scientific periodicals with referees

- 10 Rodrigues, J. M. M.; Figueira, F. A. S.; Farinha, A. S. F.; Cavaleiro, J. A. S.; Tome, J. P. C., “*Diphenyl-porphyrins derivatives for cyanide anion sensing in organic and aqueous media*”, **under preparation**.
- 09 Rodrigues, J. M. M.; Serra, V. V.; Faustino, A. F.; Neves, M. G. P. M. S.; Andrade, S. M.; Costa, S. M. B. Costa, “*Self-assembly of porphyrin aggregates – pH, counterion, temperature and concentration effects*”, **under preparation**.
- 08 Figueira, F. A. S.; Rodrigues, J. M. M.; Farinha, A. S. F.; Cavaleiro, J. A. S.; Tome, J. P. C., “*Synthesis and Anion Binding Properties of poly-pyrrolic macrocycles*”, *J. Porphyrins Phthalocyanines*, **2016, accepted**.
- 07 Rodrigues, J. M. M.; Farinha, A. S. F.; Tome, A. C.; Cavaleiro, J. A. S.; Tome, J. P. C., “*Highly selective optical chemosensor for cyanide in aqueous medium*”, *Sens. Actuators, B*, **2016**, 224, 81. <http://dx.doi.org/doi:10.1016/j.snb.2015.10.026>
- 06 Andrade, S. M.; Bueno-Alejo, C. J.; Serra, V. V.; Rodrigues, J. M. M.; Neves, M. G. P. M. S.; Viana, A. S.; Costa, S. M. B., “*Anchoring of gold nanoparticles on graphene oxide and noncovalent interactions with porphyrinoids*”, *ChemNanoMat*, **2015**, 1, 502. <http://dx.doi.org/10.1002/cnma.201500133>
- 05 Melo, L. B.; Rodrigues, J. M. M.; Farinha, A. S. F.; Marques, C. A.; Bilro, L.; Alberto, N.; Tome, J. P. C.; Nogueira, R. N., “*Concentration sensor based on a tilted fiber Bragg grating for anions monitoring*”, *Opt. Fiber Technol.*, **2014**, 20, 422. <http://dx.doi.org/10.1016/j.yofte.2014.05.002>
- 04 Alves, E.; Rodrigues, J. M. M.; Faustino, M. A. F.; Neves, M. G. P. M. S.; Cavaleiro, J. A. S.; Lin, Z.; Cunha, A.; Nadais, M. H.; Tome, J. P. C.; Almeida, A., “*A new insight on nanomagnet-porphyrin hybrids for photodynamic inactivation of microorganisms*”, *Dyes Pigm.*, **2014**, 110, 80. <http://dx.doi.org/10.1016/j.dyepig.2014.05.016>
- 03 Rodrigues, J. M. M.; Farinha, A. S. F.; Muteto, P. V.; Woranovicz-Barreira, S. M.; Paz, F. A. A.; Neves, M. G. P. M. S.; Cavaleiro, J. A. S.; Tome, A. C.; Gomes, M. T. S. R.; Sessler, J. L.; Tome, J. P. C., “*New porphyrin derivatives for phosphate anion sensing in both organic and aqueous media*”, *Chem. Commun.*, **2013**, 50, 1359. <http://dx.doi.org/10.1039/C3CC47504B>

02 Pereira, C. F.; Fernandes, J. A.; Rodrigues, J. M. M.; Vilela, S. M. F.; Tome, J. P. C.; Paz, F. A. A., "5- 4-(Diethoxyphosphoryl)-2,3,5,6-tetrafluorophenyl -10,15,20-tris(penta fluorophenyl)porphyrin", *Acta Crystallogr., Sect. C: Cryst. Struct. Commun.*, **2012**, 68, O104. <http://dx.doi.org/10.1107/S0108270112002934>

01 Serra, V. V.; Zamarron, A.; Faustino, M. A. F.; Iglesias-de la Cruz, M. C.; Blazquez, A.; Rodrigues, J. M. M.; Neves, M. G. P. M. S.; Cavaleiro, J. A. S.; Juarranz, A.; Sanz-Rodriguez, F., "New porphyrin amino acid conjugates: Synthesis and photodynamic effect in human epithelial cells", *Bioorg. Med. Chem.*, **2010**, 18, 6170. <http://dx.doi.org/10.1016/j.bmc.2010.06.030>

7.3. Communications

7.3.1. Oral Communications:

03 M. Graça P. M. S. Neves, Eliana Alves, Mariana Mesquita, **João M. M. Rodrigues**, Adelaide Almeida, Ângela Cunha, M. Amparo F. Faustino, "Development of photoactive materials for environmental applications", 16th Congress of the European Society for Photobiology, IL406, Aug 31-Sep 4, **2015** (Aveiro, Portugal)

02 João M. M. Rodrigues, Andreia S. F. Farinha, Augusto C. Tomé, José A. S. Cavaleiro, João P. C. Tomé, "Phthalocyanines as Chromogenic Anion Sensors", "XX Encontro Luso-Galego de Química", 26th-28th November, **2014** (Porto, Portugal)

01 M. Graça P. M. S. Neves, Eliana Alves, Liliana Costa, **João M. M. Rodrigues**, Carla M. B. Carvalho, Adelaide Almeida, Ângela Cunha, M. Amparo F. Faustino, João P. C. Tomé, "New Photoactive Nanomaterials for Environmental Applications", Eight International Conference on Porphyrins and Phthalocyanines, ICPP-8, OC S27, 22-27 June, **2012** (Istanbul, Turkey)

7.3.2. Poster Communications:

16 João M. M. Rodrigues, Andreia S. F. Farinha, Augusto C. Tomé, José A. S. Cavaleiro, João P. C. Tomé, "Phthalocyanines as Chromogenic Anion Sensors", European Symposium of Organic Chemistry, 19th ESOC, P 404, pg 590, 12th-16th July, **2015** (Lisbon, Portugal)

15 João M. M. Rodrigues, Andreia S. F. Farinha, Tito Trindade, Augusto C. Tomé, José A. S. Cavaleiro, João P. C. Tomé, "A new anion receptor based on a nanomagnet-porphyrin hybrid" 10 Encontro Nacional Química Orgânica e 1^o Simposio Luso-Brasileiro de Química Orgânica (10ENQO-1SLB), P 45, pg 144, 4th-7th September, **2013** (Lisbon, Portugal)

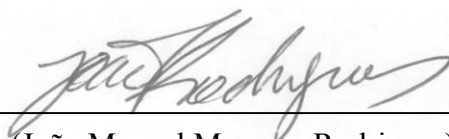
14 João M. M. Rodrigues, Andreia S. F. Farinha, Filipe A. Almeida Paz, Maria G. P. M. S. Neves, Augusto C. Tomé, José A. S. Cavaleiro, Paulino V. Muteto, M. Teresa S. R. Gomes, João P. C. Tomé, "Aminoporphyrins derivatives as selective anions sensors", XXIII National Meeting of the Portuguese Society of Chemistry/XXIIIENSPQ, P 2.63, pg 227, 12th-14th June, **2013** (Aveiro, Portugal)

- 13 Leandro Lourenço, Flávio Figueira, Clara Gomes, Patrícia Pereira, Sérgio Vilela, Carla Pereira, **João Rodrigues**, Daniela Firmino, Joana Ferreira, Patrícia Martins, Venkatramaiah Nutalapati, Catarina Ramos, João Tomé, "*Photoactive Molecules and Materials for Photomedicine, Photocatalysis, Chemosensing and Energy Applications*", 3rd Research Day, Univeristy of Aveiro, 19th June, **2013** (Aveiro, Portugal)
- 12 João M. M. Rodrigues, Eliana Alves, Maria A. F. Faustino, Maria G. P. M. S. Neves, José A. S. Cavaleiro, Ângela Cunha, Zhi Lin, Adelaide Almeida, João P. C. Tomé, "*Synthesis and Functionalization of New Nanomagnet-Porphyrin Hybrids for the Photodynamic Inactivation of Microorganisms*", 3^o Encontro Nacional de Química Terapêutica (3^o ENQT), P 68, pg 120, 28th-30th November, **2012** (Aveiro, Portugal)
- 11 Joana T. Ferreira, **João M. M. Rodrigues**, Augusto C. Tomé, José A. S. Cavaleiro, Andreia S. F. Farinha, João P. C. Tomé, "*New phthalocyanines as chromogenic anion sensor*", 3^o Encontro Nacional de Química Terapêutica (3^o ENQT), P64, pg 116, 28th-30th November, **2012** (Aveiro, Portugal)
- 10 E. Malheiro, L. Melo, R. Pinto, **J. Rodrigues**, A. Farinha, N. Alberto, L. Bilro, T. Trindade, J. Tomé, R. Nogueira, "*Silica-coated tilted fiber Bragg grating for anion recognition*", EOSAM 2012, 25th-28th September, **2012** (Scotland, UK)
- 09 João M. M. Rodrigues, Andreia S. F. Farinha, Filipe A. Almeida Paz, Maria G. P. M. S. Neves, Augusto C. Tomé, José A. S. Cavaleiro, Jonathan L. Sessler, João P. C. Tomé, "*Aminoporphyrins as Chromogenic Anions Sensors*", International Conference on Porphyrins and Phthalocyanines, ICPP-7, 1st-6th July, **2012** (Jeju, Korea)
- 08 Flávio Figueira, Clara Gomes, Dora Costa, **João Rodrigues**, Sandrina Silva, Patricia Pereira, Andreia Farinha, José Cavaleiro, João Tomé, "*Synthesis of Porphyrins and Analogues for Photomedicinal and Environmental Applications*", 2nd Research Day, Univeristy of Aveiro, 13rd June, **2012** (Aveiro, Portugal)
- 07 Carla F. Pereira, **João M. M. Rodrigues**, Sérgio M. F. Vilela, Filipe A. Almeida Paz, João P. C. Tomé, "*Synthesis of new porphyrin-phosphonate derivatives for MOFs construction*", 3rd Portuguese Young Chemists Meeting, 9th-11st May, **2012** (Porto, Portugal)
- 06 Carla F. Pereira, **João M. M. Rodrigues**, Sérgio M. F. Vilela, Filipe A. Almeida Paz, João P. C. Tomé, "*Synthesis of new tetra-phosphonated porphyrins for the self-assembly of Metal-Organic Frameworks*", IX Jornadas CICECO, 2nd-3rd May, **2012** (Aveiro, Portugal)
- 05 João M. M. Rodrigues, Eliana F. A. Carvalho, Andreia S. F. Farinha, Filipe A. Almeida Paz, Augusto C. Tomé, José A. S. Cavaleiro, Jonathan L. Sessler, João P. C. Tomé, "*Porphyrins and Phthalocyanines as Chromogenic Anion Sensors*", 4th Brazilian Meeting on Organic Synthesis (BMOS 2011), 1st-5th September, **2011** (Brasilia, Brazil)

- 04 João M. M. Rodrigues, Andreia S. F. Farinha, Filipe A. Almeida Paz, Maria G. P. M. S. Neves, Augusto C. Tomé, José A. S. Cavaleiro, João P. C. Tomé, “*Porphyrins used as selective anions sensors*”, XXII National Meeting of the Portuguese Society of Chemistry/XXIIENSPQ, QO-CP 015, pg 244, 3rd-6th July, **2011** (Braga, Portugal)
- 03 V. Vaz Serra, S.M. Andrade, **João M. M. Rodrigues**, M.G.P.M.S. Neves, M.A.F. Faustino, J.A.S. Cavaleiro, S.M.B. Costa “*The Role of Counterions in the Self Assembly Chemistry of Meso-4-carboxyphenylporphyrins*”, International Conference on Porphyrins and Phthalocyanines, ICPP-6, 4th-9th July, **2010** (New Mexico, USA)
- 02 V. Vaz Serra, M.A.F. Faustino, **João M. M. Rodrigues**, M.G.P.M.S. Neves, A.C. Tomé, J.A.S. Cavaleiro, A. Zamarron, M.C. Iglesias-De La Cruz, A. Blasquez, A. Juarranz, F. Sanz-Rodriguez; “*Porphyrin Amino Acid Conjugates: Photophysical properties and photodynamic effect in human epithelial cells*”, International Conference on Porphyrins and Phthalocyanines, ICPP-6, 4th-9th July, **2010** (New Mexico, USA)
- 01 João M. M. Rodrigues, V. Vaz Serra, M.G.P.M.S. Neves, M.A.F. Faustino, J.A.S. Cavaleiro; “*Porphyrin Amino Acid Conjugates: Photostability and Singlet Oxygen Determination*”. 2nd Portuguese Young Chemist Meeting, 2ndPYCheM, 21st-23rd April, **2010** (Aveiro, Portugal)

8 – Languages

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| Portuguese | Native language | | |
| | <u>Reading</u> | <u>Writing</u> | <u>Speaking</u> |
| English | Proficient | Proficient | Proficient |



(João Manuel Marques Rodrigues)