CURRICULUM VITAE

Dr Mikhail A. Filatov
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• Professional Experience

11/2020–current	Lecturer in Organic Chemistry School of Chemical and Pharmaceutical Sciences, Technological University Dublin, Ireland
10/2017–11/2020	Assistant Lecturer School of Chemical and Pharmaceutical Sciences, Technological University Dublin, Ireland
09/2015 – 09/2017	Marie Curie Research Fellow (IF) School of Chemistry, Trinity College Dublin, Ireland
04/2014 – 07/2015	Researcher in EU project POLINNOVA Institute of Polymers, Bulgarian Academy of Sciences, Sofia, Bulgaria
02/2010 – 03/2014	Postdoctoral Fellow Max Planck Institute for Polymer Research, Mainz, Germany
12/2008 – 12/2009	CNRS Postdoctoral Fellow Institute of Molecular Chemistry, University of Burgundy, Dijon, France
06/2008 – 07/2008	Visiting Scientist Department of Biochemistry and Biophysics, University of Pennsylvania, Philadelphia, USA
08/2005 – 10/2008	Managing Director Esterkem Ltd., private chemical company, Moscow, Russia

• Education

01/2020 – 06/2020	Postgraduate Certificate in University Learning and Teaching Learning, Teaching and Technology Centre (LTTC), TU Dublin, Ireland
10/2005 – 11/2008	PhD in Organic Chemistry Department of Chemistry, Moscow State University, Moscow, Russia Thesis title: "General synthetic approach to porphyrins and dipyrrins with π-extended system". Supervisors: Prof. Irina Beletskaya, Dr. Andrei Cheprakov
09/2000 – 07/2005	Diploma of Chemist (with honours) Department of Chemistry, Moscow State University, Moscow, Russia

• Research Interests

Multistep organic synthesis (π-extended porphyrins, dipyrrins, BODIPYs). Synthesis of materials (polymeric nanoparticles, biopolymers, graphene oxide, MOFs). Singlet oxygen (generation, sensing, reactivity). Photoinduced electron transfer. Intersystem crossing in heavy-atom-free molecules. Photodynamic therapy. Triplet-triplet annihilation photon upconversion. Photocatalysis.

• Funding and Support

2020 – current	TU Dublin PG Scholarship Programme Project: "Heavy-Atom-Free Photosensitizing Materials"
2015 – 2017	European Commission, Horizon 2020 program Project: "Controlled Singlet Oxygen Release Sensitizer in Photodynamic Therapy"
2015 – 2014	Max Planck Society Scholarship

2007 – 2008 Scholarship of the President of Russian Federation for outstanding PhD students

2005 Russian Foundation for Assistance to Small Innovative Enterprises (spin-off)
Project: "Development of Technology of 24-Epibrassinolide Production"

• Teaching Experience

Current teaching responsibilities:

CHEM1007 – Introduction to Chemistry (24 lectures), CHEM2008 – Organic Chemistry (12 lectures), CHEM2022 – Spectroscopy (12 lectures), CHEM2024 - Pharmaceutical & Bioorganic Chemistry (12 lectures), CHEM2025 - Medicinal Chemistry & Pharmchem Processes (12 lectures), CHEM3011 - Organic Chemistry & Stereochemistry (12 lectures), CHEM4008 - Topics in Medicinal Chemistry (6 lectures)

Previously taught modules:

CHEM2009 - Principles of Drug Action (6 lectures), CHEM2023 - Organic Chemistry (12 lectures), CHEM3003 - Organic Chemistry & Stereochemistry (12 lectures), CHEM4004 - Advanced Organic Chemistry (12 lectures)

Departmental admin roles: year coordinator of DT261-2 group (BSc in Medicinal Chemistry and Pharmaceutical Sciences)

• Reviewer Activities

Journal articles (115):

Chemical Communications (44), ChemistrySelect (25), The Journal of Organic Chemistry (14), Chemistry–A European Journal (5), Photochemical and Photobiological Sciences (4), Physical Chemistry Chemical Physics (4), Angewandte Chemie International Edition (3), New Journal of Chemistry (3), RSC Advances (3), Chemistry and Biodiversity (2), Dyes and Pigments (2), Electroanalysis (1), Chemistry – An Asian Journal (1), Journal of Physical Chemistry (1), ChemPhotoChem (1), ChemPhysChem (1), Chemical Science (1)
Reviewer Identifier: publons.com/a/1546745/

Funding applications (21):

European Commission H2020 – Marie Curie IEFs, ANR (Agence nationale de la recherché), Polish National Science Centre

• Memberships in Professional Societies

American Chemical Society, Marie Curie Fellows Association, Marie Curie Alumni Association (Irish chapter)

• Publications

Summary: 31 scientific papers published (13 as a corresponding author), 1 book chapter, 4 patents.
h index = 18 (Google Scholar), > 1000 citations
https://scholar.google.bg/citations?user=g1IdjV4AAAAJ&hl=ru
Orcid ID: orcid.org/0000-0002-1640-841X

Peer-review articles

(* corresponding author)

1. N. Kiseleva, D. Busko, B.S. Richards, M.A. Filatov*, A. Turshatov, Determination of Upconversion Quantum Yields Using Charge-Transfer State Fluorescence of Heavy-Atom-Free Sensitizer as a Self-Reference. *J. Phys. Chem. Lett.*, **2020**, *11*, 6560-6566.

2. A. A. Buglak, M.A. Filatov, M.A. Hussain, M. Sugimoto, Singlet Oxygen Generation by Porphyrins and Metalloporphyrins Revisited: a Quantitative Structure-Property Relationship (QSPR) Study. *J. Photochem. Photobiol. A*, **2020**, *43*, 112833.

3. M.A. Filatov* Heavy-atom-free BODIPY Photosensitizers with Intersystem Crossing Mediated by Intramolecular Photoinduced Electron Transfer. *Org. Biomol. Chem.*, **2020**, *18*, 10-27.

4. S. Callaghan, M.A. Filatov, H. Savoie, R.W. Boyle, M.O. Senge, In vitro cytotoxicity of a library of BODIPY-anthracene and -pyrene dyads for application in photodynamic therapy. *Photochem. Photobiol. Sci.*, **2019**, *18*, 495-504.

5. M.A. Filatov*, S. Karuthedath, P.M. Polestshuk, S. Callaghan, K. Flanagan, T. Wiesner, F. Laquai, M.O. Senge, BODIPY-Pyrene and Perylene Dyads as Heavy-Atom-Free Singlet Oxygen Sensitizers. *ChemPhotoChem*, **2018**, *2*, 606-615.

6. M.A. Filatov*, S. Karuthedath, P.M. Polestshuk, S. Callaghan, K. Flanagan, M. Telitchko, T. Wiesner, F. Laquai, M.O. Senge, Control of triplet state generation in heavy atom-free BODIPY–anthracene dyads by media polarity and structural factors. *Phys. Chem. Chem. Phys.*, **2018**, *20,* 8016-8031.

7. N. Kiseleva, M.A. Filatov*, M. Oldenburg, D. Busko, M. Jakoby, I.A. Howard, B.S. Richards, M.O. Senge, S.M. Borisov, A. Turshatov, The Janus-Faced Chromophore: A Donor-Acceptor Dyad with Dual Performance in Photon Up-conversion. *Chem. Commun.*, **2018**, *54*, 1607-1610.

8. M.A. Filatov*, S. Karuthedath, P.M. Polestshuk, H.Savoie, K.J. Flanagan, C. Sy, E. Sitte, M. Telitchko, F. Laquai, R.W. Boyle, M.O. Senge, Generation of Triplet Excited States via Photoinduced Electron Transfer in *meso*-anthra-BODIPY: Fluorogenic Response toward Singlet Oxygen in Solution and *in Vitro*. *J. Am. Chem. Soc.*, **2017**, *139*, 6282−6285.

9. S. Callaghan, M.A. Filatov*, E. Sitte, H. Savoie, R.W. Boyle, K.J. Flanagan, and M.O. Senge, Delayed release singlet oxygen sensitizers based on pyridone-appended porphyrins. *Photochem. Photobiol. Sci.*, **2017**, *16*, 1371-1374.

10. M.A. Filatov*, M.O. Senge, Molecular devices based on reversible singlet oxygen binding in optical and photomedical applications. *Mol. Syst. Des. Eng.*, **2016**, *1*, 258-272.

11. M.A. Filatov*, S. Baluschev, K. Landfester, Protection of Densely Populated Excited Triplet State Ensembles Against Deactivation by Molecular Oxygen. *Chem. Soc. Rev.*, **2016**, *45*, 4668-4689.

12. T.G.B. de Souza, M.G. Vivas, C.R. Mendonça, S. Plunkett, M.A. Filatov, M.O. Senge, L. De Boni, Studying the intersystem crossing rate and triplet quantum yield of meso-substituted porphyrins by means of pulse train fluorescence technique. *J. Porphyrins Phthalocyanines*, **2016**, *20*, 1–10.

13. M.A. Filatov*, F. Etzold, D. Gehrig, F. Laquai, D. Busko, K. Landfester, S. Baluschev, Interplay between singlet and triplet excited states in a conformationally locked donor–acceptor dyad. *Dalton Trans.*, **2015**, *44*, 19207-19217.

14. M.A. Filatov*, E. Heinrich, K. Landfester, S. Baluschev, meso-Tetraphenylporphyrin with a pi-system extended by fusion with anthraquinone. *Org. Biomol. Chem.*, **2015**, *13*, 6977-6983.

15. M.A. Filatov*, E. Heinrich, D. Busko, I.Z. Ilieva, K. Landfester, S. Baluschev, Reversible Oxygen Addition on a Triplet Sensitizer Molecule: Protection from Excited States Depopulation. *Phys. Chem. Chem. Phys.*, **2015**, *17*, 6501-6510.

16. M.A. Filatov, S. Ritz, I. Ilieva, V. Mailander, K. Landfester, S. Baluschev, Extending the infrared limit of oxygenic photosynthesis. *SPIE Newsroom*, **2014**, doi: 10.1117/2.1201403.005378.

17. C. Wohnhaas, V. Mailänder, M. Dröge, M.A. Filatov, D. Busko, Y. Avlasevich, Stanislav Baluschev, T. Miteva, K. Landfester, A. Turshatov, Fabrication of low-power upconverting nanocapsules for bioimaging in red and far-red spectral regions. *Macromolecular Bioscience*, **2013**, *13*, 1422−1430.

18. M.A. Filatov*, S. Baluschev, I.Z. Ilieva, V. Enkelmann, T. Miteva, K. Landfester, S. Aleshchenkov, A.V. Cheprakov, Tetraanthraporphyrins: synthesis, structure and optical properties. *J. Org. Chem.*, **2012**, *77*, 11119−11131.

19. P.D. Harvey, A. Langlois, M.A. Filatov, D. Fortin, K. Ohkubo, S. Fukuzumi, R. Guilard, Decoupling the Artificial Special Pair to Slow Down the Rate of Singlet Energy Transfer. *J. Porphyrins Phthalocyanines*, **2012**, *16*, 8-10.

20. E.R. Ranyuk, M.A. Filatov, A.D. Averin, A.V. Cheprakov, I.P. Beletskaya, The Synthesis of Highly Basic π-Extended Porphyrins by Palladium Catalyzed Amination. *Synthesis*, **2012**, *3*, 393-398.

21. S. Thyagarajan, B. Ghosh, M.A. Filatov, A.V. Moore, A.V. Cheprakov, S.A. Vinogradov, Near infrared dipyrrin-based fluorogenic chelators for metal ions. *Proc. SPIE*, **2011**, 7910, 79100Z.

22. P.D. Harvey, M.A. Filatov, R. Guilard, Bis- and Trisporphyrin Bio-Inspired Models for Bacterial Antennas and Photosystems. *J. Porphyrins Phthalocyanines*, **2011**, *15*, 1-22.

23. M.A. Filatov, A.V. Cheprakov, The Synthesis of New Tetrabenzo- and Tetranaphthoporphyrins via the Addition Rreactions of 4,7-Dihydroisoindole. *Tetrahedron*, **2011**, 3559-3566.

24. M.A. Filatov, F. Laquai, D. Fortin, R. Guilard, P.D. Harvey, Strong Donor–Acceptor Couplings in a Special Pair-Antenna Model. *Chem. Comm.*, **2010**, *46*, 9176-9178.

25. M.A. Filatov, A. Y. Lebedev, S.N. Mukhin, S. A. Vinogradov and A. V. Cheprakov, π-Extended Dipyrrins Capable of Highly Fluorogenic Complexation with Metal Ions. *J. Am. Chem. Soc.*, **2010**, *132*, 9552-9554.

26. M.A. Filatov, R. Guilard, P.Harvey, Selective Stepwise Suzuki Cross-coupling Reaction for the Modelling of Photosynthetic Donor–Acceptor Systems. *Org. Lett.*, **2010**, *12*, 196-199.

27. A.V. Cheprakov, M.A. Filatov, The Dihydroisoindole Approach to π-Extended Porphyrins. *J. Porphyrins and Phthalocyanines*, **2009**, *13*, 291-303.

28. A.Y. Lebedev, M.A. Filatov, A.V. Cheprakov, S.A. Vinogradov, Effects of Structural Deformations on Optical Properties of Tetrabenzoporphyrins: Free-bases and Pd Complexes. *J. Phys. Chem. A.*, **2008**, *112*, 7723-7733.

29. M.A. Filatov, A.Y. Lebedev, S.A. Vinogradov, A.V. Cheprakov, Synthesis of 5,15-Diaryltetrabenzoporphyrins. *J. Org. Chem.*, **2008**, *73*, 4175-4185.

30. M.A. Filatov, A.V. Cheprakov, I.P. Beletskaya, A Facile and Reliable Method for the Synthesis of Tetrabenzoporphyrins from 4,7-Dihydroisoindole. *Eur. J. Org. Chem.*, **2007**, 3468-3475.

31. O.S. Finikova, A.V. Cheprakov, S.Y. Chernov, M.A. Filatov, S.A. Vinogradov, I.P. Beletskaya. Novel Synthesis of Substituted Tetraaryltetrabenzoporphyrins. *Doklady Chemistry*, **2003**, *391*, 222-224.

Patents

1. Long-term stable composition, such as phosphorescent composition or TTA-photon upconversion composition, EP 2 851 407 A1, US 2016/0222286 A1, WO 2015/044129 A1, **2015**

2. Method of Synthesis of 5,5'-Disubstituted π-extended Dipyrromethenes and Their Use as Analytical Reagents for Metal Ions and Fluorescent Imaging Probes, US 2011/0144351 A1, **2009**

3. Method of Reduction of Unsaturated Ketones into Saturated Ketones, RU 2 293 720 C1, **2007**

4. Method of Synthesis of 24-Epibrassinolide, RU 2 272 044 C1, **2006**

Book chapters

M.A. Filatov, Protection of triplet excited state materials from oxygen quenching and photooxidation in optical sensing applications *in Applications of Quenched Phosphorescence Detection of Molecular Oxygen in Life Sciences*, ed. D. B. Papkovsky and R. I. Dmitriev, Royal Society of Chemistry, Cambridge, **2018**, pp. 91-116, ISBN: 978-1-78801-175-4.

• Talks and Seminars (last 5 years)

12/2018	"Heavy atom-free donor-acceptor dyads with efficient and tunable intersystem crossing" 10th Asian Photochemistry Conference, Taipei, Taiwan	Invited talk
07/2018	"Janus-faced chromophores: Dual performance of BODIPY in triplet-triplet annihilation photon upconversion" 27th PhotoIUPAC, Dublin, Ireland	Oral presentation
11/2017	"Molecular oxygen shuttles for applications in energy conversion and biomedicine" 2nd Silk Road International Symposium for Young Distinguished Scholars, Xian, China	Invited talk

07/2017	"Heavy atom-free BODIPY donor-acceptor dyads as singlet oxygen sensitizers" 28th International Conference on Photochemistry, Strasbourg, France	Oral presentation
04/2017	"Interplay Between Singlet and Triplet Energy States of Organic Molecules and Oxygen: Applications in Energy Conversion and Biomedicine" ICMUB, University of Burgundy, Dijon, France	Research seminar
12/2016	"Protection of Triplet Excited State Materials Against Quenching by Oxygen" 9th Asian and Oceanian Conference on Photochemistry, Singapore	Oral presentation
09/2016	"Deactivation of Photon Upconversion Systems by Oxygen: Protection strategy" EMN Meeting on Photonics, Barcelona, Spain	Invited Talk
04/2016	“Controlled Singlet Oxygen Release Photosensitizers in Photodynamic Therapy” TBSI Postdoctoral Research Day, TCD, Dublin, Ireland	Oral presentation
01/2016	"New Molecular Devices for the Control of Singlet Oxygen Generation in Photonic and Biomedical Applications" Central European Conference on Photochemistry CECP, Bad Hofgastein, Austria	Oral presentation
11/2016	“Delayed Singlet Oxygen Release Materials for Photodynamic Therapy” TBSI Knowledge Exchange Seminar, TCD, Dublin, Ireland	Research seminar
07/2015	"Triplet-Triplet Annihilation Photon Upconversion: Extending the Infrared Limit of Oxygenic Photosynthesis" 27th International Conference on Photochemistry, Jeju, South Korea	Oral presentation
07/2015	“Polymeric Singlet Oxygen Generating Scaffolds” 27th International Conference on Photochemistry, Jeju, South Korea	Oral presentation