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EDUCATION:

2018 – 2020 **Ph.D. in Chemistry**
School of Chemistry, University of Birmingham, Birmingham, United Kingdom

2016 – 2018 **Ph.D. in Chemistry** (*registration transferred to University of Birmingham*)
Department of Chemistry, University of Warwick, Coventry, United Kingdom
Ph.D. Thesis: *"Tuning the membrane properties of functional polymersomes developed by aqueous polymerization-induced self-assembly (PISA)"*
Supervisor: Prof. Rachel K. O'Reilly

2014 – 2016 **M.Sc. in Polymer Science** – (Grade: 9.78/10 – 1st class)
Department of Chemistry, National and Kapodistrian University of Athens, Athens, Greece
Master's Thesis: *"Synthesis, characterization and self-assembly of stimuli-responsive copolymers of poly(ethylene oxide), poly(L-histidine) and poly(L-cysteine) for the encapsulation of anticancer drugs and their controlled release"*
Supervisor: Prof. Hermis Iatrou

2010 – 2014 **B.Sc. in Chemistry** – (Grade: 7.98/10)
Department of Chemistry, National and Kapodistrian University of Athens, Athens, Greece
Diploma Thesis: *"Encapsulation of anticancer drugs into polypeptide-based nanostructures"*
Supervisor: Prof. Hermis Iatrou

PROFESSIONAL EXPERIENCE:

Sep 2021 – present **Research Associate**
Department of Chemistry, University of Sheffield, Sheffield, United Kingdom
Supervisor: Prof. Steven P. Armes

Jul 2020 – Jun 2021 **Research Fellow**
Department of Chemistry, University College London (UCL), London, United Kingdom
Supervisor: Prof. Giuseppe Battaglia

RESEARCH INTERESTS:

- Controlled polymerization techniques (i.e., reversible addition−fragmentation chain-transfer (RAFT) polymerization, ring-opening metathesis polymerization (ROMP), ring-opening polymerization (ROP))
- Visible light-mediated and oxygen-tolerant polymerization techniques in aqueous media
- Bio-inspired, sustainable and stimuli-responsive polymers from renewable resources
- Self-assembly of amphiphilic block copolymers in aqueous media *via* polymerization-induced self-assembly (PISA) and conventional methodologies
- Protein-, (poly)peptide- and amino acid-based nanomaterials
- Biomembrane-mimicking polymeric nanoreactors and molecular transport mechanisms
- Cell/organelle mimicry and enzyme-mediated catalysis and therapy

TEACHING, SUPERVISION AND MENTORING EXPERIENCE:

- Teaching Assistant, School of Chemistry, University of Birmingham, UK, *Courses*: Organic Chemistry II Practical Demonstrating (October 2018 – December 2018), Organic Chemistry III Practical Demonstrating (February 2019), Year 3 Mini-Project on Polymer Chemistry Practical Demonstrating and Marking (November 2019)
- Teaching Assistant, Department of Chemistry, University of Warwick, UK, *Course*: Inorganic Chemistry III Practical Demonstrating (October 2016 – December 2016)
- Course Certificate on "Preparing to Teach in Higher Education" awarded by University of Warwick, UK (November 2016)
- During my current employment as Research Associate at the Department of Chemistry, University of Sheffield (UK), I am co-supervising 1 MChem student and acting as peer-to-peer mentor for 1 Ph.D. student.

- During my Ph.D. studies at the School of Chemistry, University of Birmingham (UK) and the Department of Chemistry, University of Warwick (UK), I had co-supervised 3 Ph.D. students, 1 M.Sc. student, 2 MChem students and 1 B.Sc. summer project student.
- During my M.Sc. studies at the Department of Chemistry, National and Kapodistrian University of Athens (Greece), I had co-supervised 2 B.Sc. diploma project students.

OUTREACH ACTIVITY AND PROFESSIONAL SERVICE:

- Mentor of 3 Year 10/11 students (November 2021 – January 2022) and 2 Year 12/13 students (March 2022 – June 2022) through the *Brightside* mentoring scheme
- Presider for the ACS PMSE Division at the ACS Fall 2021 National Meeting (August 2021)
- Ambassador of the Society of Chemical Industry (SCI) (May 2021 – present)
- Registered UK STEM Ambassador – over 25 hours of outreach service (June 2020 – present)
- Member of UCL's *Ask the Expert* outreach programme (February 2021 – June 2021)
- Member of UCL's organizing team for the *Pint of Science 2021* festival (December 2020 – May 2021)
- Member of the Chemistry Zone for *I'm a Scientist, Stay at Home* online STEM activity (May 2020 – July 2020)

- Reviewer for the following scientific journals: *Journal of the American Chemical Society* (ACS), *ACS Macro Letters* (ACS), *Macromolecules* (ACS), *Polymer Chemistry* (RSC), *Polymers* (MDPI) and *Nanomaterials* (MDPI)
- Invited Guest Editor for *Polymers* (MDPI) (November 2020 – June 2021)

AWARDS AND FUNDING:

- **2022 ACS Global Outstanding Graduate Student Award in Polymer Science and Engineering**, ACS PMSE Division and CME (March 2022)
- **2022 PMSE Future Faculty Scholar**, ACS PMSE Division (March 2022)
- **RSC Researcher Development Grant** (Grant No. D20-977) (January 2022)
- **Best Oral Presentation Award** at the 13th Hellenic Polymer Society International Conference (December 2021)
- **Post-Doctoral Fellowship** funded by the Engineering and Physical Sciences Research Council (EPSRC) (Grant No. EP/R003009/1) (September 2021 – present)
- **Macro Group UK Jon Weaver PhD Prize 2020** (August 2021)
- **2020/21 Zouhair Atassi PhD Prize**, School of Chemistry, University of Birmingham (July 2021)
- **Katharine Burr Blodgett Award 2021**, Joint Colloids Group (May 2021)
- **2021 JEOL USA Image Contest Winner** (May 2021)
- **Post-Doctoral Fellowship** funded by the Engineering and Physical Sciences Research Council (EPSRC) (Grant No. EP/R024723/1) (July 2020 – June 2021)
- **Best Poster Prize** at the Macro Group UK Young Researchers Meeting (YRM) 2020 (June 2020)
- **Excellence in Graduate Polymer Research Award**, ACS POLY Division (March 2020)
- **Ottewill International Travel Scholarship 2020** to attend the ACS Spring 2020 National Meeting & Expo in Philadelphia, PA, USA (March 2020)
- **Beamtime proposal** at Diamond Light Source, UK (Proposal No. SM25031), Co-Investigator (January 2020)
- **Biomaterials & Soft Matter Best Poster Prize (RSC)** at the 14th International Conference on Materials Chemistry (MC14) in Birmingham, UK (July 2019)
- **Macro Group UK DH Richards Memorial Travel Bursary** to attend the 2019 Polymers Gordon Research Conference (GRC) in South Hadley, MA, USA (June 2019)
- **Ph.D. Scholarship** funded by the European Research Council (ERC) Consolidator Grant (Grant No. 615142) (October 2016 – June 2020)
- **Distinction Award** from the Hellenic Ministry of Education, Lifelong Learning and Religious Affairs (October 2010)

LIST OF PUBLICATIONS:

28. **Varlas, S.**; Dean, O. J.; Neal, T. J.; Robinson, D.; Armes, S. P. *Manuscript in preparation*.
27. Thomas, M.; **Varlas, S.**; Xie, Y.; Wilks, T. R.; O'Reilly, R. K. *Manuscript in preparation*.
26. Miclotte, M. P. J.; **Varlas, S.**; Reynolds, C. D.; Rashid, B.; Chapman, E.; O'Reilly, R. K. Thermoresponsive Block Copolymer Core-Shell Nanoparticles with Tunable Flow Behavior in Porous Media. *Manuscript submitted*.

25. *__Varlas, S.__; Neal, T. J.; Armes, S. P. Polymerization-induced self-assembly and disassembly during the synthesis of thermoresponsive ABC triblock copolymer nano-objects in aqueous solution. *Manuscript under revision*.
24. Jimaja, S.; __Varlas, S.__; Foster, J. C.; Taton, D.; Dove, A. P.; O'Reilly, R. K. Stimuli-responsive and core cross-linked micelles developed by NiCCo-PISA of helical poly(aryl isocyanide)s. *Manuscript under revision*.
23. *__Varlas, S.__; Maitland, G. L.; Derry, M. J. Protein-, (Poly)peptide-, and Amino Acid-Based Nanostructures Prepared via Polymerization-Induced Self-Assembly. *Polymers*, **2021**, *13*, 2603. (link)
22. Miclotte, M. P. J.; Lawrenson, S. B.; __Varlas, S.__; Rashid, B.; Chapman, E.; O'Reilly, R. K. Tuning the Cloud-Point and Flocculation Temperature of Poly(2-(diethylamino)ethyl methacrylate)-Based Nanoparticles via a Postpolymerization Betainization Approach. *ACS Polymers Au*, **2021**, *1*, 47-58. (link)
21. †__Varlas, S.__; †Hua, Z.; Jones, J. R.; Thomas, M.; Foster, J. C.; O'Reilly, R. K. Complementary Nucleobase Interactions Drive the Hierarchical Self-Assembly of Core–Shell Bottlebrush Block Copolymers toward Cylindrical Supramolecules. *Macromolecules* **2020**, *53*, 9747-9757. (link)
20. †Foster, J. C.; †Grocott, M. C.; Arkinstall, L. A.; __Varlas, S.__; Redding, M. J.; Grayson, S. M.; O'Reilly, R. K. It is Better with Salt: Aqueous Ring-Opening Metathesis Polymerization at Neutral pH. *J. Am. Chem. Soc*. **2020**, *142*, 13878-13885. (link)
19. __Varlas, S.__; Lawrenson, S. B.; Arkinstall, L. A.; O'Reilly, R. K.; Foster, J. C. Self-assembled nanostructures from amphiphilic block copolymers prepared via ring-opening metathesis polymerization (ROMP). *Prog. Polym. Sci*. **2020**, *107*, 101278. (link)
18. Keogh, R.; Blackman, L. D.; Foster, J. C.; __Varlas, S.__; O'Reilly, R. K. The Importance of Cooperativity in Polymer Blending: Toward Controlling the Thermoresponsive Behavior of Blended Block Copolymer Micelles. *Macromol. Rapid Commun*. **2020**, *41*, 1900599. (link)
17. Jimaja, S.; __Varlas, S.__; Xie, Y.; Foster, J. C.; Taton, D.; Dove, A. P.; O'Reilly, R. K. Nickel-Catalyzed Coordination Polymerization-Induced Self-Assembly of Helical Poly(Arylisocyanide)s. *ACS Macro Lett*. **2020**, *9*, 226-232. (link)
16. __Varlas, S.__; Keogh, R.; Xie, Y.; Horswell, S. L.; Foster, J. C.; O'Reilly, R. K. Polymerization-Induced Polymersome Fusion. *J. Am. Chem. Soc*. **2019**, *141*, 20234-20248. (link)
15. †Karatzas, A.; †Haataja, J.; Skoulas, D.; Bilalis, P.; __Varlas, S.__; Apostolidi, P.; Sofianopoulou, S.; Stratikos, E.; Houbenov, N.; Ikkala, O.; Iatrou. H. Macromolecular Architecture and Encapsulation of the Anticancer Drug Everolimus Control the Self-Assembly of Amphiphilic Polypeptide-Containing Hybrids. *Biomacromolecules* **2019**, *20*, 4546-4562. (link)
14. __Varlas, S.__; Foster, J. C.; O'Reilly, R. K. Ring-opening metathesis polymerization-induced self-assembly (ROMPISA). *Chem. Commun*. **2019**, *55*, 9066-9071. (link)
13. __Varlas, S.__; Foster, J. C.; Georgiou, P. G.; Keogh, R.; Husband, J. T.; Williams, D. S.; O'Reilly, R. K. Tuning the membrane permeability of polymersome nanoreactors developed by aqueous emulsion polymerization-induced self-assembly. *Nanoscale* **2019**, *11*, 12643-12654. (link)
12. __Varlas, S.__; Foster, J. C.; Arkinstall, L. A.; Jones, J. R.; Keogh, R.; Mathers, R. T.; O'Reilly, R. K. Predicting Monomers for Use in Aqueous Ring-Opening Metathesis Polymerization-Induced Self-Assembly. *ACS Macro Lett*. **2019**, *8*, 466-472. (link)
11. Foster, J. C.; __Varlas, S.__; Couturaud, B.; Coe, Z.; O'Reilly, R. K. Getting into Shape: Reflections on a New Generation of Cylindrical Nanostructures' Self-Assembly using Polymer Building Blocks. *J. Am. Chem. Soc.* **2019**, *141*, 2742-2753. (link)
10. †Couturaud, B.; †Georgiou, P. G.; __Varlas, S.__; Jones, J. R.; Arno, M. C.; Foster, J. C.; O'Reilly, R. K. Poly(Pentafluorophenyl Methacrylate)-Based Nano-Objects Developed by Photo-PISA as Scaffolds for Post-Polymerization Functionalization. *Macromol*. *Rapid Commun*. **2019**, *40*, 1800460. (link)
9. __Varlas, S.__; Georgiou, P. G.; Bilalis, P.; Jones, J. R.; Hadjichristidis, N.; O'Reilly, R. K. Poly(Sarcosine)-Based Nano-Objects with Multi-Protease Resistance by Aqueous Photoinitiated Polymerization-Induced Self-Assembly (Photo-PISA). *Biomacromolecules* **2018**, *19*, 4453-4462. (link)
8. Foster, J. C.; †__Varlas, S.__; †Couturaud, B.; Jones, J. R.; Keogh, R.; Mathers, R. T.; O'Reilly, R. K. Predicting Monomers for use in Polymerization-Induced Self-Assembly. *Angew. Chem. Int. Ed*. **2018**, *57*, 15733-15737. (link)
7. __Varlas, S.__; Blackman, L. D.; Findlay, H. E.; Reading, E.; Booth, P. J.; Gibson, M. I.; O'Reilly, R. K. Photoinitiated Polymerization-Induced Self-Assembly in the Presence of Surfactants Enables Membrane Protein Incorporation into Vesicles. *Macromolecules* **2018**, *51*, 6190-6201. (link)
6. Foster, J. C.; __Varlas, S.__; Blackman, L. D.; Arkinstall, L. A.; O'Reilly, R. K. Ring-Opening Metathesis Polymerization in Aqueous Media using a Macroinitiator Approach. *Angew. Chem. Int. Ed*. **2018**, *57*, 10672-10676. (link)

5. †**Varlas, S.**; †Blackman, L. D.; Arno, M. C.; Houston, Z. H.; Fletcher, N. L.; Thurecht, K. J.; Hasan, M.; Gibson, M. I.; O'Reilly, R. K. Confinement of Therapeutic Enzymes in Selectively Permeable Polymer Vesicles by Polymerization-Induced Self-Assembly (PISA) Reduces Antibody Binding and Proteolytic Susceptibility. *ACS Cent. Sci.* **2018**, *4*, 718-723. (link)
4. Liarou, E.; **Varlas, S.**; Skoulas, D.; Tsimblouli, C.; Sereti, E.; Dimas, K.; Iatrou, H. Smart polymersomes and hydrogels from polypeptide-based polymer systems through α-amino acid N-carboxyanhydride ring-opening polymerization. From chemistry to biomedical applications. *Prog. Polym. Sci*. **2018**, *83*, 28-78. (link)
3. Blackman, L. D.; **Varlas, S.**; Arno, M. C.; Fayter, A.; Gibson, M. I.; O'Reilly, R. K. Permeable Protein-Loaded Polymersome Cascade Nanoreactors by Polymerization-Induced Self-Assembly. *ACS Macro Lett*. **2017**, *6*, 1263-1267. (link)
2. Bilalis, P.; Tziveleka, L.-A.; **Varlas, S.**; Iatrou, H. pH-Sensitive nanogates based on poly(L-histidine) for controlled drug release from mesoporous silica nanoparticles. *Polym. Chem*. **2016**, *7*, 1475-1485. (link)
1. Bilalis, P.; **Varlas, S.**; Kiafa, A.; Velentzas, A.; Stravopodis, D.; Iatrou, H. Preparation of hybrid triple-stimuli responsive nanogels based on poly(L-histidine). *J. Polym. Sci. Polym. Chem. Part A* **2016**, *54*, 1278-1288. (link)

† Denotes equal author contribution. * Denotes corresponding authorship.

CONFERENCE PRESENTATIONS AND PROCEEDINGS:

To date, I have delivered **13 oral presentations** (including **6 invited talks** and **1 "Best Oral Presentation" prize**) and **14 poster presentations** (including **2 "Best Poster" prizes**) as the leading presenter in national, international and online conferences and meetings. A full list of my oral and poster presentations can be provided upon request.

Conference Proceedings:

6. **Varlas, S.**; Blackman, L. D.; Foster, J. C.; Arno, M. C.; Gibson, M. I.; O'Reilly, R. K. Tuning membrane properties of functional polymersomes developed via aqueous photoinitiated polymerization-induced self-assembly (photo-PISA). *Abstr. Pap. Am. Chem. Soc*. **2020**, *259*, PMSE-0696.
5. **Varlas, S.**; Foster, J. C.; Keogh, R.; Arinstall, L. A.; Mathers, R. T.; O'Reilly, R. K. Expanding the scope of aqueous ring-opening metathesis polymerization-induced self-assembly (ROMPISA). *Abstr. Pap. Am. Chem. Soc*. **2020**, *259*, PMSE-0695.
4. **Varlas, S.**; Keogh, R.; Xie, Y.; Foster, J. C.; O'Reilly, R. K. Evolution of tubesomes via polymerization-induced polymersome fusion. *Abstr. Pap. Am. Chem. Soc*. **2020**, *259*, POLY-0647.
3. **Varlas, S.**; Foster, J. C.; Georgiou, P. G.; Keogh, R.; Husband, J. T.; Williams, D. S.; O'Reilly, R. K. Tuning the membrane permeability of polymersome nanoreactors developed by aqueous emulsion polymerization-induced self-assembly. *Abstr. Pap. Am. Chem. Soc*. **2020**, *259*, POLY-0257.
2. Foster, J. C.; **Varlas, S.**; Arkinstall, L. A.; Keogh, R.; O'Reilly, R. K. Nanostructure synthesis by ring-opening metathesis polymerization-induced self-assembly. *Abstr. Pap. Am. Chem. Soc.* **2019**, *258*, 84-POLY.
1. Foster, J. C.; **Varlas, S.**; Arkinstall, L. A.; O'Reilly, R. K. Advances in aqueous metathesis chemistry. *Abstr. Pap. Am. Chem. Soc.* **2019**, *258*, 63-PMSE.

PROFESSIONAL MEMBERSHIPS:

- Member of the American Chemical Society (ACS) (January 2019 – present)
- Member of Polymeric Materials: Science and Engineering (PMSE), Polymer Chemistry (POLY) and Colloid & Surface Chemistry (COLL) Divisions (ACS) (January 2019 – present)
- Member of the Royal Society of Chemistry (MRSC) (June 2017 – present)
- Member of Macro Group UK, Biomaterials Chemistry Group and Materials Chemistry Division (RSC) (June 2017 – present)
- Member of the Society of Chemical Industry (SCI) (June 2017 – present)
- Member of the Royal Microscopical Society (RMS) and European Microscopy Society (EMS) (April 2018 – present)
- Graduate Network Committee Member of the United Kingdom & Ireland Controlled Release Society (UKICRS) (January 2018 – November 2020)
- Member of the Association of Greek Chemists (AGC) (October 2014 – present)

REFERENCES:

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Prof. Matthew I. Gibson
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