

**UNIVERSITÀ DEGLI STUDI DI MILANO**

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## Valerio Fasano

### CURRICULUM VITAE

**PERSONAL DATA**

Cognome	<b>FASANO</b>
Nome	<b>VALERIO</b>
Data Di Nascita	<b>17/02/1990</b>

**QUALIFICATIONS****DEGREE**

16 <sup>th</sup> Oct 2014	<b>MSc in Chemistry (LM-54) - 110/110 con lode</b> Università di Bologna (Italy) <i>Thesis Title</i> Photoredox Catalyzed Michael Additions Supervisor Prof. Marco Bandini
27 <sup>th</sup> Jul 2012	<b>BSc in Chemistry (L-27) - 110/110 con lode</b> Università di Catania (Italy) <i>Thesis Title</i> Riduzioni asimmetriche di un ferrocenil chetone racemico Supervisor Prof. Domenico Sciotto

**DOCTORAL DEGREE OR EQUIVALENT QUALIFICATION EARNED IN ITALY OR ABROAD / MEDICAL SPECIALISATION DIPLOMA OR EQUIVALENT QUALIFICATION, FOR THE RELEVANT SECTORS, EARNED IN ITALY OR ABROAD**

24 <sup>th</sup> Oct 2018	<b>PhD in Chemistry</b> University of Manchester (UK) <i>Thesis Title</i> Water/base tolerance in Frustrated Lewis Pair chemistry with boron, carbon and phosphorus Lewis acids Supervisor Prof. Michael J. Ingleson
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**TEACHING ACTIVITIES AT ITALIAN OR FOREIGN UNIVERSITIES**

2021-2022	Invited Visiting Professor at the University of Milan (Italy) to deliver the course "Recent Strategies in Organoboron Chemistry" for PhD students in Chemistry (10 hours, 2 CFU)
2020-2021 2019-2020	Lecturer at the University of Bristol (UK) for the course "Technology & automation equipment training" for PhD students in Technology Enhanced Chemical Synthesis (4 weeks, 30 CFU).
2020-2021	Tutoring of exercise sessions within the course "Organic Chemistry II" at the University of Bristol (UK), supervised by Dr. Karen Parrish (4 weeks).
19 <sup>th</sup> Sept 2016 – 9 <sup>th</sup> Jun 2017	Tutoring activity within the course "Laboratory of Chemistry – 3rd year" at the University of Manchester (UK), supervised by Dr. Peter Quayle.

**ATTESTED TRAINING OR RESEARCH ACTIVITIES AT QUALIFIED ITALIAN OR FOREIGN INSTITUTIONS**

1 <sup>st</sup> Jan 2022 – (31 <sup>st</sup> Oct 2022)  <i>Research Activity Supervisor</i>	<b>Visiting Research Fellow</b> (honorary status) Department of Chemistry University of Bristol (UK) <i>Origin of the diastereoselectivity in reactions involving organoboronic esters</i> Prof. Varinder Aggarwal
1 <sup>st</sup> Dec 2018 – 31 <sup>st</sup> Dec 2021  <i>Research Activity Supervisor</i>	<b>EPSRC Doctoral Prize Research Fellow</b> (contract sponsored by the EPS Research Council) Department of Chemistry University of Bristol (UK) <i>Automating Complex Organic Synthesis to Aid Drug Discovery</i> Prof. Varinder Aggarwal
18 <sup>th</sup> Sep 2017 – 20 <sup>th</sup> Dec 2017  <i>Research Activity Supervisor</i>	<b>Visiting Researcher</b> (contract sponsored by the Royal Society of Chemistry) Department of Chemistry University of Toronto (Canada) <i>Electrophilic Phosphonium Cations as Catalysts in Frustrated Lewis Pair Chemistry</i> Prof. Douglas Stephan
23 <sup>rd</sup> Mar 2015 – 21 <sup>st</sup> Jul 2015  <i>Research Activity Supervisor</i>	<b>Research Assistant</b> (contract sponsored by the University of Manchester) Department of Chemistry University of Manchester (UK) <i>The reactivity of boron electrophiles</i> Prof. Michael Ingleson
1 <sup>st</sup> Feb 2022	<b>National Scientific Habilitation to Associate Professorship in Organic Chemistry</b> (ASN 2021-23, Bando D.D. 553/2021 Settore Concorsuale 03/C1 Chimica Organica, II Fascia)

**ORGANISATION, SUPERVISION AND COORDINATION OF NATIONAL AND INTERNATIONAL RESEARCH GROUPS, OR PARTICIPATION IN THEM**

Since Apr 2021          <i>Role of the candidate within the project</i>	Participation in the <u>national</u> research project “Identification, sustainable synthesis and study of molecular drugs efficacy in brain tumors treatment” Funding Program “MIUR” Funding Agency “PRIN 2017” Coordinator: Prof. Daniele Passarella Università degli Studi di Milano  <i>Elaboration of the scientific program; day-to-day training of PhD students; article writing and submission for publication, as demonstrated by the following article as a corresponding author:</i> A. Maiocchi, J. Barbieri, V. Fasano*, D. Passarella* Stereoselective Synthetic Strategies to (–)-Cannabidiol ChemistrySelect 2022, 7, e202202400 (DOI:10.1002/slct.202202400)
Dec 2018 – Dec 2021          <i>Role of the candidate within the project</i>	Participation in the <u>international</u> research project “Automating Complex Organic Synthesis to Aid Drug Discovery” Funding Program “EPSRC Doctoral Prize, EP/R513179/1” Funding Agency “Engineering and Physical Sciences Research Council” Coordinator: Prof. Varinder Aggarwal University of Bristol (UK) and Chemspeed Technologies AG (Switzerland)  <i>Elaboration of the scientific program; day-to-day training of PhD students; article writing and submission for publication, as demonstrated by the following article as the first author:</i> V. Fasano, R. C. Mykura, J. M. Fordham, J. J. Rogers, B. Banecki, A. Noble, V. K. Aggarwal* Automated Stereocontrolled Assembly-Line Synthesis of Organic Molecules Nature Synthesis 2022, DOI:10.1038/s44160-022-00158-6
Sep 2017 – Dec 2017	Coordination of the <u>international</u> research project “Electrophilic CF <sub>3</sub> -substituted Phosphonium cations as water-tolerant Lewis acids for use in FLPs”, Funding Program “RSC Mobility Grant, EP/R513179/1” Funding Agency “Royal Society of Chemistry” Coordinator: Valerio Fasano University of Manchester (Prof. Ingleson) and University of Toronto (Prof. Stephan)

<i>Role of the candidate within the project</i>	<i>Elaboration of the scientific program; day-to-day training of PhD students; article writing and submission for publication, as demonstrated by the following article as the first author with double affiliations (Manchester and Toronto):</i> V. Fasano, J. LaFortune, J. M. Bayne, M. J. Ingleson*, D. W. Stephan* Air- and water-stable Lewis acids: synthesis and reactivity of P-trifluoromethyl electrophilic phosphonium cations. Chem. Comm. 2018, 54, 662
Feb 2014 – Jul 2014  <i>Role of the candidate within the project</i>	Participation in the <u>international</u> research project “Photoredox-catalysed Michael addition” Funding Program “Erasmus Program” Funding Agency “European Commission” Coordinator: Prof. Mogda Monari Partner units: Università di Bologna (Prof. M. Bandini) and University of Lund (Prof. P. Somfai)  <i>Development of the experimental methods for the MSc thesis.</i>
Sep 2013 – Dec 2013  <i>Role of the candidate within the project</i>	Participation in the <u>national</u> research project “Incorporazione di un antitumorale in nanoparticelle core-shell silica-PEG” Funding Program: Sviluppo tesi Funding Agency: The University of Catania Coordinator: Prof. Salvatore Sortino Partner units: Università di Bologna (Prof. L. Prodi) and Università di Catania (Prof. D. Sciotto)  <i>Development of the experimental methods for the Diploma Thesis of the Scuola Superiore dell’Università Catania</i>

#### SPEAKING AT NATIONAL AND INTERNATIONAL CONFERENCES AND CONVENTIONS

14 <sup>th</sup> Sep 2021 – 23 <sup>rd</sup> Sep 2021	Oral Communication at <i>XXVII Congresso Nazionale</i> , organised by the Società Chimica Italiana. Title of the talk: “How big is the pinacol boronic ester?”. <u>Scholarship granted by Società Chimica Italiana</u>
25 <sup>th</sup> Ago 2021 – 27 <sup>th</sup> Ago 2021	Oral Communication at the <i>International Young Investigator Symposium on Organic Synthesis (ASSOS 2021)</i> , organised by the University of Athens (Greece). Title of the talk: “Divergent, stereospecific mono- and difluoromethylation of boronic esters”.
29 <sup>th</sup> Jun 2021 – 1 <sup>st</sup> Jul 2021	Oral Communication at the <i>Dalton 2021- Joint Interest Group meeting and DYME</i> , organised by the University of Warwick (UK). Title of the talk: “How big is the pinacol boronic ester?”
14 <sup>th</sup> Jun 2021 – 17 <sup>th</sup> Jun 2021	Oral Communication at <i>XLV A. Corbella International Summer School on Organic synthesis</i> , organised by the Università di Milano. Title of the talk: “Divergent, stereospecific fluoromethylation of boronic esters”. <u>Best Oral Communication Award</u>
12 <sup>th</sup> May 2018	Oral Communication at <i>ABTA 2018</i> , organised by the University College London (UK). Title of the talk: “Borane-catalysed reductive aminations”.
3 <sup>rd</sup> Apr 2018 – 5 <sup>th</sup> Apr 2018	Poster Communication (P62) at <i>Dalton 2018</i> , organised by the University of Warwick (UK). Title of the poster: “Water-tolerant of B(C <sub>6</sub> F <sub>5</sub> ) <sub>3</sub> and BPh <sub>3</sub> in reductive aminations”
10 <sup>th</sup> Apr 2017 – 13 <sup>th</sup> Apr 2017	Flash Communication at <i>ISACS 2017</i> , organised by the University of Manchester (UK). Title of the talk: “Challenges in main group chemistry: water tolerance of B(C <sub>6</sub> F <sub>5</sub> ) <sub>3</sub> and BPh <sub>3</sub> in reductive aminations using hydrosilanes”

## NATIONAL AND INTERNATIONAL AWARDS AND ACCOLADES FOR RESEARCH ACTIVITY

- *Premio Junior Ricerca 2022 - chimica organica nei suoi aspetti metodologici*, by the Organic Chemistry Division of the *Società Chimica Italiana*
- *Doctoral Researcher Award 2018*, by the Association of British Turkish Academics at the University College London. This award promotes and rewards academic and scientific excellence among researchers pursuing doctoral degrees in the UK.
- *STEM for Britain 2019*, by the British Parliamentary & Scientific Committee. This event is a major scientific poster competition and exhibition whose aim is to give members of both Houses of Parliament an insight into the outstanding research work being undertaken in UK universities by early-career researchers.

## QUALIFICATIONS “ASSEGNI DI RICERCA AI SENSI DELL'ART. 51, COMMA 6, DELLA LEGGE 27 DICEMBRE 1997, N. 449 E SUCCESSIVE MODIFICAZIONI O DI BORSE POSTDOTTORATO AI SENSI DELL'ART. 4 DELLA LEGGE 30 NOVEMBRE 1989, N. 398, OVVERO DI ANALOGHI CONTRATTI, ASSEGNI O BORSE IN ATENEI STRANIERI”

Qualifications “Analoghi contratti, assegni o borse in atenei stranieri”:

- University of Bristol (UK), 1<sup>st</sup> Dec 2018 – 31<sup>st</sup> Dec 2021: Post-Doctoral Research Fellow
- University of Toronto (Canada), 18<sup>th</sup> Sep 2017 – 20<sup>th</sup> Dec 2017: Visiting Researcher
- University of Manchester (UK), 23<sup>rd</sup> Mar 2015 – 21<sup>st</sup> Jul 2015: Researcher Assistant

## SCIENTIFIC PUBLICATIONS

\* = corresponding Author

‡ = equal contribution

25. V. Fasano<sup>‡</sup>, R. C. Mykura<sup>‡</sup>, J. M. Fordham, J. J. Rogers, B. Banecki, A. Noble, V. K. Aggarwal\*

Automated Stereocontrolled Assembly-Line Synthesis of Organic Molecules

*Nature Synthesis* **2022**, DOI:10.1038/s44160-022-00158-6

IF<sub>2021</sub> = 0 since launched in Jan 2022; Citation (Scopus) = 0.

24. A. Maiocchi, J. Barbieri, V. Fasano\*, D. Passarella\*

Stereoselective Synthetic Strategies to (–)-Cannabidiol

*ChemistrySelect* **2022**, 7, e202202400 (DOI:10.1002/slct.202202400)

IF<sub>2021</sub> = 2.307; Citation (Scopus) = 0.

23. L. Lewis-Borrell, M. Sneha, I. P. Clark, V. Fasano, A. Noble, V. K. Aggarwal\*, A. J. Orr-Ewing\*

Direct observation of reactive intermediates by time-resolved spectroscopy unravels the mechanism of a radical-induced 1,2-metallate rearrangement.

*J. Am. Chem. Soc.* **2021**, *143*, 17191

IF<sub>2021</sub> = 16.383; Citation (Scopus) = 2.

22. D. P. Hari, R. Madhavachary, V. Fasano, J. Haire, V. K. Aggarwal\*

Highly Diastereoselective Strain-Increase Allylboration: Rapid Access to Alkylidenecyclopropanes.

*J. Am. Chem. Soc.* **2021**, *143*, 7462

IF<sub>2021</sub> = 16.383; Citation (Scopus) = 8.

21. V. Fasano, V. K. Aggarwal\*

Origin of stereocontrol in the Matteson reaction: Importance of attractive electrostatic interactions.

*Tetrahedron* **2021**, *78*, 131810

IF<sub>2021</sub> = 2.388; Citation (Scopus) = 0.

20. V. Fasano, A. W. McFord, C. P. Butts, B. S. L. Collins, N. Fey, R. W. Alder, V. K. Aggarwal\*

How big is the pinacol boronic ester as substituent?

*Angew. Chem. Int. Ed.* **2020**, *59*, 22403

Selected as Hot paper

IF<sub>2021</sub> = 16.823; Citation (Scopus) = 21.

19. S. H. Bennett, A. Fawcett, E. H. Denton, T. Biberger, V. Fasano, N. Winter, V. K. Aggarwal\*  
Difunctionalization of C–C  $\sigma$  Bonds Enabled by the Reaction of Bicyclo[1.1.0]butyl Boronate Complexes with Electrophiles: Reaction Development, Scope, and Stereochemical Origins.  
*J. Am. Chem. Soc.* **2020**, *142*, 16766  
IF<sub>2021</sub> = 16.383; Citation (Scopus) = 16.
18. C. Jing, S. Mallah, E. Kriemen, S. H. Bennett, V. Fasano, A. L. L. Lennox, I. Hers, V. K. Aggarwal\*  
Synthesis, Stability and Biological Studies of Fluorinated Analogues of Thromboxane A<sub>2</sub>.  
*ACS Cent. Sci.* **2020**, *6*, 995  
IF<sub>2021</sub> = 18.728; Citation (Scopus) = 6.
17. V. Fasano<sup>‡</sup>, N. Winter<sup>‡</sup>, A. Noble, V. K. Aggarwal\*  
Divergent, stereospecific mono- and difluoromethylation of boronic esters.  
*Angew. Chem. Int. Ed.* **2020**, *59*, 8502  
Selected as Hot paper  
IF<sub>2021</sub> = 16.823; Citation (Scopus) = 23.
16. D. P. Hari; J. C. Abell, V. Fasano, V. K. Aggarwal\*  
Ring Expansion Induced 1,2-Metallate Rearrangements: Highly Diastereoselective Synthesis of Cyclobutyl Boronic Esters.  
*J. Am. Chem. Soc.* **2020**, *142*, 5515  
IF<sub>2021</sub> = 16.383; Citation (Scopus) = 18.
15. D. Kaiser, A. Noble, V. Fasano, V. K. Aggarwal\*  
1,2-Boron Shifts of  $\beta$ -Boryl Radicals Generated from Bis-boronic Esters Using Photoredox Catalysis.  
*J. Am. Chem. Soc.* **2019**, *141*, 14104  
IF<sub>2021</sub> = 16.383; Citation (Scopus) = 35.
14. J. E. Radcliffe, V. Fasano, R. W. Adams, P. You, M. J. Ingleson\*  
Reductive  $\alpha$ -borylation of  $\alpha,\beta$ -unsaturated esters using NHC–BH<sub>3</sub> activated by I<sub>2</sub> as a metal-free route to  $\alpha$ -boryl esters.  
*Chem. Sci.* **2019**, *10*, 1434  
IF<sub>2021</sub> = 9.969; Citation (Scopus) = 16.
13. V. Fasano, J. Cid, R. J. Procter, M. J. Ingleson\*  
Selective boryl–anion migration in a vinyl sp<sup>2</sup>–sp<sup>3</sup> diborane induced by soft borane Lewis acids.  
*Angew. Chem. Int. Ed.* **2018**, *57*, 13293  
IF<sub>2021</sub> = 16.823; Citation (Scopus) = 12.
12. V. Fasano, M. J. Ingleson\*  
Recent advances in water-tolerance in Frustrated Lewis Pairs chemistry.  
*Synthesis* **2018**, *50*, 1783  
IF<sub>2021</sub> = 2.969; Citation (Scopus) = 21.
11. M. J. Bayne<sup>‡</sup>, V. Fasano<sup>‡</sup>, M. K. Szkop<sup>‡</sup>, M. J. Ingleson\*, D. W. Stephan\*  
Phosphorous(V) Lewis acids: water/base tolerant P<sub>3</sub>–trimethylated trications.  
*Chem. Comm.* **2018**, *54*, 12467  
IF<sub>2021</sub> = 6.065; Citation (Scopus) = 11.
10. R. J. Kahan, D. L. Crossley, J. Cid, J. E. Radcliffe, A. W. Woodward, V. Fasano, S. Endres, G. F. S. Whitehead, M. J. Ingleson\*  
Generation of a series of B<sub>n</sub>-fused oligonaphthalenes (n = 1 to 3) from a B<sub>1</sub>-polycyclic aromatic hydrocarbon.  
*Chem. Comm.* **2018**, *54*, 9490  
IF<sub>2021</sub> = 6.065; Citation (Scopus) = 8.
9. V. Fasano, J. LaFortune, J. M. Bayne, M. J. Ingleson\*, D. W. Stephan\*  
Air- and water-stable Lewis acids: synthesis and reactivity of P-trifluoromethyl electrophilic phosphonium cations.  
*Chem. Comm.* **2018**, *54*, 662  
IF<sub>2021</sub> = 6.065; Citation (Scopus) = 27.

8. J. E. Radcliffe, J. J. Dunsford, J. Cid, V. Fasano, M. J. Ingleson\*  
N-Heterocycle-Ligated Borocation as Highly Tunable Carbon Lewis Acids.  
*Organometallics* **2017**, *36*, 4952  
IF<sub>2021</sub> = 3.837; Citation (Scopus) = 20.
7. V. Fasano, L. D. Curless, J. E. Radcliffe, M. J. Ingleson\*  
Frustrated Lewis Pair Mediated 1,2-Hydrocarbation of Alkynes.  
*Angew. Chem. Int. Ed.* **2017**, *56*, 9202  
IF<sub>2021</sub> = 16.823; Citation (Scopus) = 17.
6. V. Fasano, J. E. Radcliffe, M. J. Ingleson\*  
Mechanistic insights into the B(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>-initiated aldehyde-aniline-alkyne reaction to form substituted quinolines.  
*Organometallics* **2017**, *36*, 1623  
IF<sub>2021</sub> = 3.837; Citation (Scopus) = 23.
5. V. Fasano, M. J. Ingleson\*  
Expanding Water/Base Tolerant FLP Chemistry to Alkylamines Enables Broad Scope Reductive Aminations.  
*Chem. Eur. J.* **2017**, *23*, 2217  
Selected as Hot paper  
IF<sub>2021</sub> = 5.020; Citation (Scopus) = 49.
4. V. Fasano, J. E. Radcliffe, L. D. Curless, M. J. Ingleson\*  
N-Methyl-benzothiazolium Salts as Carbon Lewis Acids for Si-H  $\sigma$ -Bond Activation and Catalytic (De)hydrosilylation.  
*Chem. Eur. J.* **2017**, *23*, 187  
Selected as Hot paper  
IF<sub>2021</sub> = 5.020; Citation (Scopus) = 25.
3. V. Fasano, J. E. Radcliffe, M. J. Ingleson\*  
B(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>-Catalyzed Reductive Amination using Hydrosilanes.  
*ACS Catal.* **2016**, *6*, 1793  
IF<sub>2021</sub> = 13.700; Citation (Scopus) = 81.
2. J. R. Lawson, V. Fasano, J. Cid, I. Vitorica-Yrezabal, M. J. Ingleson\*  
The carboboration of Me<sub>3</sub>Si-substituted alkynes and allenes with boranes and borocations.  
*Dalton Trans.* **2016**, *45*, 6060  
IF<sub>2021</sub> = 4.390; Citation (Scopus) = 19.
1. A. J. Warner, J. R. Lawson, V. Fasano, M. J. Ingleson\*  
Formation of C(sp<sup>2</sup>)-Boronate Esters by Borylative Cyclization of Alkynes Using BCl<sub>3</sub>.  
*Angew. Chem. Int. Ed.* **2015**, *54*, 11245  
IF<sub>2021</sub> = 16.823; Citation (Scopus) = 76.

Scopus Author ID: 57159342800  
Total Publications: 25  
Total Impact Factor (2021): 256.39  
Average Impact Factor (2021) per Article: 10.26  
Total Citations: 534  
Average Citations per Article: 21.4  
H-index: 16

Data

29/08/2022

Luogo

Milan (Italy)