

CURRICULUM VITAE

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NATIONALITY French and USA (as of 11/1998)

EDUCATION

- 2007 Habilitation Chemistry, University of Strasbourg, France. Thesis title: The Signature Molecular Descriptor: Predicting Properties and Activities to Design Molecules and Biological Sequences.
- 1991 PhD Computational Chemistry, Ecole des Mines, Paris, France. Thesis title: Prediction, Elucidation, and Molecular Modeling: Algorithms and Applications in Geochemistry.
- 1986 Master Computer Science, University of Paris VI, France. Thesis title: Hidden Surface Elimination.
- 1995 Engineering degree Computer Science, Institut d'Informatique d'Entreprise, Conservatoire National des Arts & Métiers, Paris, France.
- 1982 DEUG Chemistry, University of Dijon, France.

RESEARCH, TEACHING AND ADMINISTRATIVE EXPERIENCE

- 2010-present Director, Institute of Systems & Synthetic Biology (iSSB). iSSB is a CNRS (FRE3561) research unit comprising 5 research teams, 38 faculty and staff members and 12 PhD students. The institute's mission is to develop synthetic biology in France and Europe. Activities range from metabolic engineering, gene regulation circuits synthesis, cellular and multicellular chassis engineering, to orthogonal systems dedevelopment. The institute annual budget is 3.5M€.
- 2010-present Head, Master in Systems & Synthtic Biology (mSSB). This master program has been ranked A+ by the French academic ranking agency (AERES). The master has been running for 4 consecutive years and student have participated to the iGEM competition (gold medails in 2012 & 2013, best model in 2012, best human practices in 2012 & 2013).
- 2009-present Consultant for Genopole (www.genopole.fr). Advisor for the development of Synthetic Biology in Evry.
- 2008-present Full Professor, Biology Department, Évry University. Teaching Responsibility: bioinformatics, systems & synthetic biology, and metabolic engineering (undergraduate students and 1st and 2nd year graduate students).
- 2008-present Head of the Bio-Retrosynthesis Research team at iSSB. The team is composed of a full professor, an associate professor, a technician, three post-doctoral appointees, and four PhD students. The team is developing computational, molecular biology and analytical methods for metabolic engineering.

- Spring 2011 Visiting Scholar Institute for Pure and Applied Mathematics, UCLA, CA. Organized and chaired the long term program « Navigating Chemical Compound Space for Materials and Bio Design ».
- 2007–2008 Director, Pretreatment Section, Deconstruction Division, Joint BioEnergy Institute, Emeryville, CA, USA. Research project: design of ionic liquids and cellulases for biofuel productions. Lead a group of five PhD staff scientists and post-docs (chemical engineers, analytical chemists, molecular biologists, and computational chemists).
- 2003–2008 Distinguished Member of the Systems Biology Dept., Sandia National Laboratories, Livermore, CA (*the distinguished scientist recognition is a peer-reviewed award given to the top 10% PhD employees*). Responsible of nine research projects. Inference and dynamics of signaling and transcriptional networks (cf. MISL and GENET projects in funding sources lists). Prediction of protein-protein, enzyme-metabolite and drug-target interactions (GTL, PROTDESIGN and MLSC projects). Lead a group of six PhD staff scientists and post-docs in molecular biology, bioinformatics and computational biology.
- 1997–2003 Primary Member of Computational Biology Dept., Sandia National Laboratories (*25% of PhD staff scientists are primary members*). Research projects: structural biology (IBIG project), drug design and polymer design (MLSC, iQSAR and MICS projects). Lead a group of six polymer and materials staff scientists (ASCI project).
- 1995–1997 Senior Member of Computer-Aided Molecular Design group Sandia National Laboratories (*in 1995 I am one of the first non-US citizen to be hired by Sandia Labs on a tenured position*). Research projects: Structure and reaction network inference for hydrocarbon thermal cracking (funded by Chevron).
- 1993–1994 Research Associate in the Computer-Aided Molecular Design group at Sandia National Laboratories. Research: develop computational methods for molecular design and structure inference.
- 1991–1993 Post-doctoral Scientist in the Materials Science Dept. at Penn State Univ., PA, USA. Teaching: molecular modeling. Research: Molecular structure inference of natural products (lignin, humic substances).
- 1989–1991 Agent contractual, Ecole des Mines, Paris, France. Teaching: computer graphics, molecular modeling. Research: Molecular structure inference for petroleum precursors.
- 1985–1989 Adjunct Assistant Professor in Computer Science at the Conservatoire National Arts & Métiers, Paris, France. Teaching: computer graphics, computer systems, networks.

AWARDS, HONORS AND FELLOWSHIPS

- 2012 Elected member of the Academic Senate of the University of Evry
- 2010 Nominated research unit director (DU) by the CNRS
- 2010 Nominated First Class Professor by the French National University Counsel
- 2010 Scientific Excellence award from the French National University Counsel
- 2009 Chair of Excellence award from the Agence Nationale de la Recherche (ANR)
- 2008 ATIGE grant ranked number one by Genopole
- 2008 Qualified by the French National University Counsel to hold a tenured Full Professor faculty position in theoretical chemistry
- 2007 Employee Recognition Awards from Sandia National Laboratories for my contribution to the Joint BioEnergy Institute

2006	Qualified by the French National University Counsel to hold tenured Associate professor faculty positions in biochemistry, bioinformatics, molecular biology and pharmaceutical sciences
2005	Award for Excellence from Sandia National Laboratories for my contribution to the Library Screening Center NIH Project
2003	Distinguished Member of Sandia National Laboratories Award
2002	Award for Excellence from Sandia National Laboratories for my collaboration with the University of New Mexico
1998	Award for Excellence from Sandia National Laboratories for my polymer modeling work
1997	Primary Member of Sandia National Laboratories Award
1996	Award for Excellence from Sandia National Laboratories for my project with Chevron
1003-1994	Sandia National Laboratories/Associated Western University Fellowship Award
1993	Best paper award American Chemical Society Geochemistry Division
1989-1991	Ecole des Mines Fellowship
1987-1989	French Institute of Petroleum Fellowship

EDITORIAL WORK, CONFERENCE CHAIR, PROFESSIONAL MEMBERSHIP

2013	Appointed Member of the review panel of the department of microbiology the French National Institute for Agricultural Research (INRA)
2012-present	Member of the Scientific Advisory Board, ERASynBio
2012-present	Member of French Molecular Biology & Biochemistry society
2012	Chaiman, Symposium “Perspectives in Synthetic Biology” organized par AVIESAN & AllEnvi, Paris
2011-2012	Audited as an expert in Synthetic Biology by various agencies of the French Government: Ministry of Research & Higher Education, National Academy of Technologies, Parliamentary Office for the Evaluation of Scientific and Technological Choices
2011	Organizer and Chairman of the NSF program “Navigating Chemical Compound Space for Materials and Bio Design””, UCLA, Los Angeles, CA
2011	Guest Editor, <i>Biotechnology Journal</i>
2010	Organizing committee Synthetic Biology International Conference, Evry, France
2010	Chaiman, Alternative Expression System Session, 3rd International Symposium on Biomanufacturing, Evry, France
2010	Editor « Handbook of Chemoinformatics Algorithms », CRC Press
2007-2008	Organizing committee New Mexico Bioinformatics Symposium, Santa Fe, NM
2007-2010	Program committee member, Workshop on Dialogue on Reverse Engineering Assessment and Methods, Discrete Mathematics and Theoretical Computer Science (DIMACS) conferences, New York, NY
2004	Organizer and Chairman of the symposium on “Inverse problems in Chem-Bioinformatics, SIAM/Computational Science & Engineering, Orlando, FL
1998	Organizer and Chairman of the U.S. Dept. of Energy Workshop on Polymer Aging, Albuquerque, NM
1999	Conference Co-Chair of the Hydrocarbon Reaction Chemistry Gordon Research Conference, Ventura, CA
1996-2001	Board Member of the Gordon Research Conference on Hydrocarbons
1992-present	Member of the American Chemical Society

Additionally, since 2004 I have been a regular grant reviewers for the US Department of Energy, the US department of Defense, the National Science Institutes of Israel and Australia and the French ANR.

RESEARCH GRANTS

Funding agency	Period	Title	Role	Budget *
DGA (Ministry of Defense)	2003-2016	Metabolic engineering for biosensing	PI	120K €
Chemtex	2013-2014	TPA Metabolic engineering validation	PI	130K €
PRES UniverSud Paris	2013-2014	PROMISENG: A golden list of promiscuous enzymes	PI	50K €
Région Ile de France S.E.S.A.M.E	2012-2016	EvryMeso: Scientific Computing Cluster	PI	730K €
FP7 KBBE	2012-2016	ERASynBio: EraNet in Synthetic Biology	member	195K €
FP7 IST FET	2011-2013	CADMAD PI: E. Shapiro Weizmann	member	250K €
Chemtex	2012-2013	TPA metabolic engineering	PI	25K €
Chaire d'Excellence ANR	2009-2013	RetroSynthBio: Retrosynthesis for the Bioproduction of Therapeutics	PI	484K €
AXA research funds	2012-2016	Producing new antimicrobials and enhancing the current drugs polymorphism to fight drug resistance through a new metabolic engineering framework	PI	120K €
Génopole ATIGE	2009-2012	Therapeutics production using bio-retrosynthesis	PI	230K €
CNRS Physics-Chemistry interface	2009-2010	Selecting heterologous metabolic pathways for the production of therapeutics in <i>E. coli</i> .	PI	50K €
DOE/Bioenergy Research Centers (http://www.jbei.org)	2007-2008	JBEI Join BioEnergy Institute PI: Jay Keasling UC Berkeley	Director Lignocellulose pretreatment	\$1200K / year
DOE/Sandia LDRD program	2005-2008	Shotgun protein sequencing	PI	\$350K / year
DOE/Sandia grand challenge program	2005-2008	MISL: Microscale Immune Studies Laboratory	co-PI (bioinformatics)	\$800K / year
DOE/Sandia LDRD program	2005-2008	PROTDESIGN: Cellulase engineering for biofuel production	PI	\$150K / year
NIH	2004-2007	MLSC: Molecular Libraries Screening Centers	co-PI (cheminformatics)	\$200K / year
DOE/Sandia LDRD program	2002-2005	GENET: Reverse engineering gene regulatory networks	PI	\$400K / year
DOE/Genome to Life Program	2002-2005	GTL: Carbon Sequestration in <i>Synechococcus</i> sp.	Head bioinformatics	\$300K / year
DOE/Sandia Comp. Sci. Research Foundation	2000-2005	iQSAR: Inverse molecular design. Application to Ligand design	PI	\$200K / year
DOE/Sandia grand challenge program	2000-2004	IBIG: Protein structure determination from distance constraints	Head bioinformatics	\$150K / year
DOE/ Math. Information Comput. Sci. Program	1995-2003	MICS: Application of graph theory in chemistry and bioogy	PI	\$150K / year
Exxon	2001-2002	Kerogen structure elucidation	PI	\$75K / year
DOE/Accelerated Strategic Computing Initiative	1995-2001	ASCI: Aging of organic materials (polymers)	PI	\$1200K / year
Chevron	1995-2001	Downstream petroleum feedstock structural elucidation	PI	\$75K / year

* Only the portion of the budget allocated to my research group is given

PUBLICATIONS

Keywords: Metabolic Engineering, Synthetic Biology, Systems Biology, Bioinformatics, Cheminformatics

Books and book chapters

1. Carbonell, P, Planson, A.G., **Faulon, J.L.** Retrosynthetic design of heterologous pathways. In *Methods in Molecular Biology*, volume 985 "Systems Metabolic Engineering", Ed. H. Alper, Springer 2013.
2. Misra M. , Martin S., **Faulon J.L.** Graphs: Flexible Representations of Molecular Structures and Biological Networks, in *Computational Approaches in Cheminformatics and Bioinformatics*, Guha R., Bender, A. Edts, Wiley, 2012.
3. Misra M., **Faulon J.L.** 2D Chemical structures representation and manipulation. In *Handbook of Chemoinformatics Algorithms*, CRC Press. Boca Raton, FL, 2010
4. Faulon J.L., Carbonell, P. 2D Reaction network generation. In *Handbook of Chemoinformatics Algorithms* , CRC Press. Boca Raton, FL, 2010
5. Martin S., Brown W. M., **Faulon J.L.** Using Product Kernels to Predict Protein Interactions. In *Advances in Biochemical Engineering/Biotechnology*, Eds. H. Seitz and M. Werther, Springer-Verlag. Berlin, 2008
6. **Faulon J.L.**, Visco D, Roe D. Enumerating Molecules. In: *Reviews in Computational Chemistry* Vol. 21, Lipkowitz K. Edt., Wiley-VCH, 2005.
7. Diallo, M.S.; **Faulon J.L.**, Goddard, W. A. III. and Johnson, J H. Jr. Binding of Hydrophobic Organic Compounds to Dissolved Humic Substances: A Predictive Approach Based on Computer Assisted Structure Elucidation, Atomistic Simulations and Flory-Huggins Solution Theory. In *Humic Substances: Structures, Models and Functions*. Eds. G. Davies and E.A. Ghabbour, Royal Society of Chemistry, pp. 221-237. 2001.
8. Diallo M. S., Cagin T., **Faulon J.L.**, Goddard, III, W. A., Thermodynamic Properties of Asphaltenes: A predictive Approach Based on Computer Assisted Structure Elucidation and Atomistic Simulation, Asphalts and Asphaltenes II, *Development in Petroleum Science, 40B*, Yen, T. F. and Chillingiran, G. V., Edt. Elsevier, Amsterdam, 2000.

I am also the editor of the « Handbook of Chemoinformatics Algorithms » that was published in 2010 in the series « Mathematical and Computational Biology » Chapman&Hall/CRC

Articles

1. Carbonell P, Parutto P, Herisson J, Pandit S.B, **Faulon J.L.** XTMS: pathway design in an eXTended metabolic space. *Nucleic Acids Res.* in press, PMID: 24792156, 2014
2. Fernández-Castané A, Fehér T, Carbonell P, Pauthenier C, **Faulon J.L.** Computer-aided design for metabolic engineering. *J Biotechnol.*, in press, PMID: 24704607, 2014
3. Carbonell P, Parutto P, Baudier C, Junot C, **Faulon JL.** Retropath: Automated Pipeline for Embedded Metabolic Circuits. *ACS Synth Biol.* , in press PMID: 24131345, 2013
4. Carbonell, P., Carlsson, L., **Faulon, J.L.** Stereo signature molecular descriptor. *J Chem Inf Model*, 53(4): 887-897, 2014.
5. Joo, J., Plimpton, S.J., **Faulon, J.L.** Statistical Ensemble Analysis for Simulating Extrinsic Noise-driven Response in NF-kappaB Signaling Network. *BMC Systems Biology*, 7:45, 2013.
6. Pauthenier, C., **Faulon, J.L.** State-of-the-art in metabolic engineering and contributions from synthetic biology, *Technique de l'ingénieur*, article BIO800, in press 2013.
7. Pauthenier, C., **Faulon, J.L.** Compounds produced by metabolic engineering, *Technique de l'ingénieur*, article BIO801, in press 2013.
8. Pauthenier, C., Carbonell, P., **Faulon, J.L.** La conception rationnelle de ferments biologiques: comment concevoir un micro-organisme pour produire un composé chimique spécifique. *l'Actualité Chimique*, 375:30-36, 2013.

9. Jaghoori, M.M., Jongmans S.T.Q., de Boer, F., Peironcely, J., **Faulon, J.L.**, Reijmers, T., Hankemeier, T. PMG: Multi-core metabolite identification. *Electronic Notes in Theoretical Computer Science*, 299: 53-60, 2013.
10. Planson, A.G., Carbonell, P., Grigoras, I., **Faulon, J.L.** A retrosynthetic biology approach to therapeutics: from conception to delivery. *Current Opinion in Biotechnology*, 23:948-56, 2012.
11. Carbonell, P., Fichera, D., Pandit, S.B., **Faulon, J.L.** Enumerating metabolic pathways for the production of heterologous target chemicals in chassis organisms. *BMC Systems Biology*, 6:10, 2012.
12. Planson A.G., Carbonell P., Paillard E., Pollet N., **Faulon J.L.** Compound toxicity screening and structure-activity relationship modeling in Escherichia coli. *Biotechnology and Bioengineering*, 109(3):846-850, 2012.
13. Peironcely JE, Rojas-Chertó M, Fichera D, Reijmers T, Coulier L, **Faulon JL**, Hankemeier T. OMG Open molecular generator, *J Cheminform.* 4(1):21, 2012
14. Wegner JK, Sterling A, Guha R, Bender A, **Faulon JL**, Hastings J, O'Boyle N, Overington J, Van Vlijmen H, Willighagen E: Cheminformatics, *Communications of the ACM*, 55(11) : 65-75, 2012
15. Carbonell P, Lecointre G, **Faulon JL**. Origins of specificity and promiscuity in metabolic networks. *Journal of Biological Chemistry*, 286:43994-44004, 2011.
16. Carbonell P., Planson A.G., Fichera D., **Faulon J.L.** A retrosynthetic biology approach to metabolic pathway design for therapeutic production. *BMC Systems Biology*, 5:122, 2011.
17. Jaramillo, A, **Faulon, JL**. Synthetic Biology - applying new paradigms at the interface of fundamental research and innovation. *Biotechnology Journal* 6(7): 766-767, 2011.
18. Planson, AG, Carbonell, P, Grigoras, I, **Faulon, JL**. Engineering antibiotic production and overcoming bacterial resistance. *Biotechnology Journal*, 6(7): 812-825, 2011.
19. Misra, M, Andrienko, D, Baumeier, B, **Faulon, JL**, von Lilienfeld, OA. Toward Quantitative Structure-Property Relationships for Charge Transfer Rates of Polycyclic Aromatic Hydrocarbons. *Journal of Chemical Theory and Computation*, 7(7): 2094-2103, 2011.
20. Carbonell P, **Faulon JL**. Molecular signatures-based prediction of enzyme promiscuity. *Bioinformatics*, 26, 2012-2019, 2010.
21. **Faulon J.L.**, Misra M., Martin S., Sale, K., Sapra R.. Genome Scale Enzyme-metabolites and Drug-Target interaction predictions using the signature molecular descriptor, *Bioinformatics*, 24, 225-233, 2008.
22. Simmons, B., Dibble D., Singh S., Auer M., Jorgens D., **Faulon J.L.** Utilization of atomic force microscopy, confocal microscopy, and electron microscopy to evaluate biomass pretreatment. *Microscopy and microanalysis*, 14 Suppl 2, 1492-3, 2008.
23. Weis D.C., Visco D.P. Jr, **Faulon J.L.** Data mining PubChem using a support vector machine with the Signature molecular descriptor: classification of factor XIa inhibitors. *J Mol Graph Model.* 27, 466-475, 2008.
24. May E., Leitao A., **Faulon J.L.**, Joo J., Misra M., Oprea T.I. Understanding virulence mechanism in M. tuberculosis infection via a circuit-base simulation framework. *IEEE Eng Med Biol Soc.*, 1, 4953-4955, 2008.
25. Sara P. Gaucher, Jeffrey A. Morrow, and **J.L. Faulon**. Use of a Designed Peptide Array to Infer Dissociation Trends for Non-Tryptic Peptides in Quadrupole Ion Trap and Quadrupole Time of Flight Mass Spectrometry, *Analytical Chemistry*, 79, 7822-7830, 2007.
26. Gray G.A. , Williams P.J., Brown W.M., **Faulon J.L.**, Sale K. Disparate Data Fusion for Protein Phosphorylation Prediction”, *Annals of Operations Research* Special Volume on Data Mining, in press 2007.
27. Zhang Z., Martino A., Faulon J.L.. Global analysis of IL-2 responsive genes in murine T Cell, *Journal of Interferon & Cytokine Research*, 27, 991-995, 2007.
28. Joo J., Plimpton S., Martin S., Swiler L., Slepoy A., **Faulon J.L.**, Sensitivity analysis of computational model of the NF- κ B-I κ B-A20 signal transduction network, *Annals of NY*

- Academy of Sciences*, in press 2007.
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 30. Martin S., Zhang Z., Martino A., **Faulon J.L.** Boolean Dynamics of Genetic Regulatory Networks Inferred from Microarray Time Series Data, *Bioinformatics*, 23, 866-74, 2007.
 31. Brown W. M., Martin S., Rintoul M.D., **Faulon J.L.** The Signature Molecular Descriptor. 6. Designing Novel Polymers with Targeted Properties, *J. Chem. Info. & Model.*, 46, 826-835, 2006.
 32. Brown W. M., Martin S., Chabarek J.P., Strauss C, **Faulon J.L.** Prediction of β -Strand Packing Interactions using the Signature Product, *Journal of Molecular Modeling*, 12, 355-361, 2006.
 33. Martin S., R. D. Carr R.D., **Faulon J.L.** Random Removal of Edges from Scale Free Graphs, *Physica A*. 37, 870-876, 2006.
 34. **Faulon J.L.**, Brown W.M., Martin S Reverse engineering chemical structures from molecular descriptors: how many solutions? *J. Comput Aided Mol Des.*, 2005, 1-14.
 35. Brown W.M., **Faulon J.L.**, Sale K. A deterministic algorithm for constrained enumeration of transmembrane protein folds. *Comput Biol Chem.*, 29, 143-150, 2005.
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 38. Martin S., Roe D., **Faulon J.L.** Predicting Protein-Protein Interactions using Signature Products, *Bioinformatics*, 21, 218-26, 2005.
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 43. **Faulon J.L.**, Visco D., Pophale R.S. The Signature Molecular Descriptor. 1. Using Extended Valence Sequences in QSAR and QSPR studies, *J. Chem. Inf. Comput. Sci.*, 43, 707-720, 2003.
 44. **Faulon J.L.**, Sale K, Young M.M., Exploring the conformational space of membrane protein folds matching distance constraints, *Protein Science*, 12, 1750-1761, 2003.
 45. Diallo M.S., Simpson A., Gassman P., **Faulon J.L.**, Johnson Jr. J.H., Goddard W.A., Hatcher P.G. 3-D Structural Modeling of Humic Acids through Experimental Characterization, Computer Assisted Structure Elucidation and Atomistic Simulations. 1. Clesea Soil Humic Acid. *Environ. Sci. & Technol* 37, 1783-1793, 2003.
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- Li M., LoCascio P., Olken F., Olman V., Palenik B., Plimpton S.J., Roe D.C., Samatova N. F., Shah M., Shoshoni A., Strauss C., Thomas E.V., Timlin J.A., Xu D. Carbon Sequestration in Synechococcus Sp.: From Molecular Machines to Hierarchical Modeling. *OMICS*, 6, 4, 305-330, 2002.
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 50. **Faulon J.L.**, Sault A. G. Stochastic Generator of Chemical Structure (3) Reaction Network, *J. Chem. Inf. Comput. Sci*, 41, 894 -908, 2001.
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 61. **Faulon J.L.**, Carlson G.A., Hatcher P. G., A Three-Dimensional Model for Lignocellulose from Gymnospermous Wood, *Org. Geochem.*, 211, 1169-1179, 1994.
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Conference proceedings

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4. **Faulon J.L.**, Martin S., Carr R.D. Dynamical Robustness in Gene Regulatory Networks. Proceedings IEEE CSB2004, 3, 626-627, 2004.
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7. Boduszynski M. M., **Faulon J.L.**, Molecular Structure Elucidation of Cycloalkyl- coronenes found in Hydrocracked Oils, Proceedings of the Dhahran 1996 Lab. RandD Center Technical Exchange Meeting, 35-42, 1996.
8. Boduszynski M. M., Rechsteiner C. E., Grudoski D. A., Iwamoto J. D., **Faulon J.L.**, The Effect of Molecular Structure on Molecular Weight - Boiling Point Relationship for Petroleum Fractions, Proceedings of the Dhahran 1996 Lab. RandD Center Technical Exchange Meeting, 23-34, 1996.
9. Hatcher P. G., **Faulon J.L.**, Coalification of Lignin from Vitrinite: A New Structural Template Based on a Helical Structure, Am. Chem. Soc. Div Fuel Chem. Preprints 39, 7-17, 1994.
10. Carlson G. A., **Faulon J.L.**, Applications of Molecular Modeling in Coal Research, Am. Chem. Soc. Div Fuel Chem. Preprints 39, 18-29, 1994.
11. **Faulon J.L.** and Carlson, G. A., CAMD Studies of Coal Structure and Coal Liquefaction, Proceedings of the Coal Liquefaction and Gas Conversion Contractors' Review Conference, 619-635, 1994.
12. Mathews J. P., Scaroni A., **Faulon J.L.**, Hatcher P. G., A Structural Model for Coalified Wood (Vitrinite) from Medium Volatile Bituminous Coal, Proceedings of the 7th International Conference on Coal Science, 128-138, Michaeliam, K. H. Edt, 1993.
13. Hatcher P. G., **Faulon J.L.**, Clifford D. A., Mathews J. P. , A Three-dimensional Structural Model for Humic Acids from Oxidized Soil, Proceedings of the 6th IHSS Int. Meeting, 436-446, Elsevier, Amsterdam, 1993.
14. Hatcher P. G., Wenzel K. A., **Faulon J.L.**, Reaction of Wood During Early Coalification, A Clue to the Structure of Vitrinite, Am. Chem. Soc. Div Fuel Chem. Preprints 38, 412-419, 1993.

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16. Carlson G. A., **Faulon J.L.**, Pohl P. I., Shelnutt J. A., Applications of Molecular Modeling to the Design and Characterization of Materials, Proceedings of the 93' Science and Technology Materials Conference, 12-21, 1993.
17. **Faulon J.L.**, Hatcher P.G, Wenzel K. A., A Computer Assisted-Structural Elucidation for Coal Macromolecule, Am. Chem. Soc. Div. Fuel Chem. Preprints 37, 900-910, 1992.
18. Hatcher P.G., **Faulon J.L.**, Wenzel K. A., Cody G. D., A Three Dimensional Structural Model for Vitritine from High Volatile Bituminous Coal, Am. Chem. Soc. Div. Fuel Chem. Preprints 37, 886-896, 1992.

Other publications

1. Carbonell, Faulon J.L., G. Therapeutics production using bio-retrosynthesis, *ATIGE report*, Genopole, Evry, 2012, 2011, 2010
2. Faulon J.L., G. Heffelfinger, Shotgun Protein Sequencing, *SANDIA Report 2009*, Sandia National Laboratories, Albuquerque, NM. 2009
3. Faulon J.L., La Signature Moléculaire : Prédiction de Propriétés et Activités Chimiques et Biologiques Pour la Conception de Molécules et Séquences Rapport d'HDR, Université Louis Pasteur, Strasbourg, 2007.
4. Faulon J.L., Zhang Z., Martino A., Timlin J.A., Haaland D.M., Martin S., Davidson G., May E., Slepoy A. Reverse Engineering Biological Networks: T-cell response to IL-2 stimulation. *SANDIA Report 2005- 5238379*, Sandia National Laboratories, Albuquerque, NM. 2005.
5. Faulon J.L., Visco D, Roe D. Molecular Structure Enumeration, *SANDIA Report 2004-0960*, Sandia National Laboratories, Albuquerque, NM. 2004
6. Faulon J.L., Collins M., Carr R.D. Canonizing Molecules Using Extended Valence Sequence, *SANDIA Report 2003-3157*, Sandia National Laboratories, Albuquerque, NM. 2003
7. Faulon J.L., *Prediction Elucidation and Molecular Modeling. Algorithms and Applications in Geochemistry*, Ph. D.Thesis, Edited by Ecole des Mines, Paris, 1991.

Invited lectures & conferences (since 2008 only)

1. J.L. Faulon, Shotgun Protein Sequencing, LRDR Day. Feb. 2008, Sandia National Laboratories, Albuquerque, NM, USA, Feb. 2008.
2. J.L. Faulon, M. Misra, Systems Chemical Biology, American Chemical Society, Philadelphia, PA, USA, Aug. 2008.
3. J-L Faulon, E. E. May, M. Misra, A. Leitão, T.I. Oprea, Systems chemical biology studies of enzymatic metabolic networks and inhibitors, EuroQSAR, Uppsala, Sweden, Sept. 2008
4. J-L Faulon, Metabolic engineering for Bioproduction, Seminaire Atelier Epigenese, Programme Epigenomique, Evry, Nov. 2008
5. D. Visco, D. Weis, B. Simmons, J.L. Faulon, The Inverse Design of Ionic Liquids for Pretreatment of Cellulose", AICHE Annual Meeting, Philadelphia, PA, USA, Nov. 2008.
6. D. Visco, D. Weis, B. Simmons, J.L. Faulon, Data Mining PubChem with Signature: Prediction of Biological Activity for Small Molecules", AICHE Annual Meeting, Philadelphia, PA, USA, Nov. 2008
7. J-L Faulon, A systems chemical biology approach, Seminaire Genoscope, Evry, Dec. 2008
8. J-L Faulon, A systems chemical biology approach to infer and design metabolic networks, ESF Synthetic Biology Meeting, Sant Feliu de Guixols, Catalunya, Spain, March-April 2009
9. J-L Faulon, Predicting drug-target interactions, Laboratoire Bioinformatique-Chemoinformatique, Université Paris 7 Inserm- Unit U973, Paris, Novembre 2009
10. J-L Faulon, Systems chemical biology, Laboratoire Genome Statistique, UEVE, Evry, Janvier 2010

11. J-L Faulon, Probing the evolution of enzymatic reactions with molecular signatures, journée Société Française de Chemo-informatique (SFCi), Saint Raphael, mars 2010
12. J-L Faulon, A systems chemical biology approach to design metabolic networks, Laboratoire IBICS, UEVE, Evry, Mars 2010
13. J-L Faulon, La Biologie Synthétique sur le Campus de la Genopole d'Evry, Conférence SupBioTech en Biologie Synthétique : Promesses et Dérives, Hôpital les Diaconesses, Paris, Novembre 2010
14. J-L Faulon, La Biologie de Synthèse, Le café du gène, Evry, Decembre 2010
15. J-L Faulon, Retrosynthetic design of heterologous circuits for flexible therapeutic bioproduction, International Conference on Synthetic Biology, Genopole Evry, Decembre 2010
16. J-L Faulon, Exploring the metabolic chemical space, Workshop "Optimization, Search and Graph-Theoretical Algorithms for Chemical Compound Space". IPAM, UCLA, Los Angeles, USA April 2011
17. Carbonell. Determinants of protein affinity and promiscuity for in-silico engineering of biological circuits and devices. In LRI Laboratory for Computer Science Seminars, Université Paris-Sud, Orsay (France), 2011.
18. J-L Faulon, Retrosynthetic Biology, Conference Franco-Américaine "Synth Bio 2011". Assemblée Nationale, Paris, May 2011
19. Carbonell, P, Planson A.G., Green, F. Popescu I., J-L Faulon, Retrosynthetic Biology for Therapeutic Production, SB 5.0, Stanford University, Palo Alto, June 2011
20. A.G. Planson, P. Carbonell, J.L Faulon. Therapeutic production in Escherichia coli using retrosynthetic design of metabolic pathways. In ESF-EMBO Symposium Synthetic Biology of Antibiotic Production, Sant Feliu de Guixols (Spain), 2011
21. P. Carbonell, D. Fichera, J.L. Faulon. Retrosynthetic Biology for Therapeutic Production In 71st Harden Conference - Metabolic Pathway Analysis 2011, University of Chester (UK), 2011.
22. P. Carbonell, D. Fichera, J.L. Faulon. Constructive biosynthetic pathway selection in the reaction signature space. In 71st Harden Conference - Metabolic Pathway Analysis 2011, University of Chester (UK), 2011.
23. J-L Faulon, J-L Faulon, Enzymes et Protéines de reconnaissance : Du mécanisme à la Biologie Synthétique, Congrès annuel de la Société Française de Biochimie et Biologie Moléculaire SFBBM Ax-Les-Thermes, Octobre 2011
24. J-L Faulon, Retrosynthetic Biology, EBI External Seminar, European Bioinformatics Institute, Cambridge, UK, November 2011
25. J-L Faulon, Ingénierie des biosystèmes et biologie de synthèse, Académie des Sciences et Techniques, Paris, Janvier 2012
26. J-L Faulon, Computational Biology & Synthetic Biology, IFPEN thematic day on synthetic biology, Rueil Malmaison, February 2012
27. Faulon JL, La Biologie de Synthèse au Service du Développement de Molécules Intelligentes Présentation Journée Portes Ouvertes UE MPL, Sanofi, Montpellier, Janvier 2012
28. P. Carbonell, I. Grigoras, A.G. Planson, J.L. Faulon. Modelling synergistic antimicrobial activities in peptide cocktails: Strategies for production and delivery. AMP2012 – International Symposium on Antimicrobial Peptides, Lille, France, June 2012.
29. J-L Faulon, Retrosynthetic Biology for heterologous production 24eme colloque du CBSO (Club Bioconversion en Synthèse Organique), Evry, France, June 2012
30. J-L Faulon, Retrosynthetic Biology, Journée Porte Ouverte Département de Biologie, U. Evry, July 2012
31. P. Carbonell, Faulon, J.L. A journey into retrosynthesis: exploring the origins of promiscuity in biosynthetic pathways. Jena Life Science Forum 2012: Designing Living Matter, Jena, Germany, September 2012 .

32. Faulon, J.L. A retrosynthetic biology approach for the production of heterologous target chemicals in chassis organisms. Chemical Engineering at the Life Science Interface, Sheffield, UK, November 2012 .
33. J-L Faulon, Metabolic pathway engineering, SYN BIO WORKSHOP, Haut Conseil des Biotechnologies, Paris, Decembre 2012
34. Faulon, J.L. Les raisons de l'émergence d'une nouvelle technologie. Journée Biologie de Synthèse « De la recherche aux applications industrielles, Syndicat de l'Industrie Chimique Organique de Synthèse et de la Biochimie (SICOS), Puteaux, France, February 2012
35. J-L Faulon, Metabolite structure elucidation using mass spectrometry. French Society for Metabolomics and Fluxomics, Paris, May 2013.
36. J-L Faulon, A Rational Metabolic Engineering Pipeline: from CAD to product identification and back again, JOBIM, Toulouse, July 2013.
37. J-L Faulon, CAD for metabolic engineering, International Conference, Advances in Industrial Biotechnology : Synthetic Pathways and Reaction Cascades, University of Bielefeld, Germany, September 2013.
38. J-L Faulon, Institute of Systems and Synthetic Biology activities and perspective, French-UK SynBio Symposium, London, October 2013.
39. J-L Faulon, " J-L Faulon, "A metabolic engineering pipeline: from computer-aided design to product quantification". Biomedical Engineering Seminar, University of Glasgow, Janvier 2014
40. J-L Faulon, "A metabolic engineering pipeline: from computer-aided design to product quantification". MIB Seminar, University of Manchester, 13 févr. 2014
41. J-L Faulon, "Outlooks in Synthetic Biology" International Conference, University of Manchester, 11 avril 2014.

While I was a research staff member at Sandia National Laboratories, I could not teach nor mentor PhD students. Consequently, the activities listed below do not cover the 1993-2008 period.

Since 2010, I have been heading the master of Systems & Synthetic Biology (mSSB). I have co-written this program in 2009 and run it since its opening in 2010. About 15 students are following this master program every year. 75% of the students are pursuing a PhD, some in prestigious schools and organizations such as Cambridge U. (G. Chalancon, 2010), College de France (A. Ismail, 2011) or the NASA Ames research center (C. Verseux, 2013).

2012-present	course lecturer Cheminformatics (20 hrs), spring semester, Bionformatics master graduate students, University of Paris-Diderot.
2010-present	course lecturer Metabolic Engineering (18 hrs), fall semester, mSSB graduate students, University of Evry
2010-present	course organizer and lecturer Protein Engineering (20 hrs), fall semester, mSSB graduate students, University of Evry
2010-present	course organizer Synthetic Biology (80 hrs), fall semester, mSSB graduate students, University of Evry
2008-present	course lecturer Bioinformatics (40 hrs), fall semester, undergraduate first year students, University of Evry
2008-present	course lecturer Bioinformatics (40 hrs), spring semester, undergraduate second year students, University of Evry
2008-2011	course lecturer Molecular Modeling (18 hrs), fall semester, Genome Biology Informatics master program graduate students, University of Evry

- 1991-1993 course lecturer Molecular Modeling (12 hrs), fall semester, fuel science graduate students program, Penn State University, PA
- 1989-1991 course lecturer, spring semester, computer graphics (8 hrs), molecular modeling (8hrs). Ecole des Mines, Paris, France
- 1985-1989 courses lecturer, fall & spring semester, computer graphics (8 hrs), computer systems (20 hrs), networks (20 hrs), Conservatoire National Arts & Métiers, Paris, France

PhD students:

2013-present	Vincent Libis (iGEM team Paris-Bettencourt 2013), “Biosensor engineering”, Doctoral School “Frontière du Vivant”, Paris
2012-present	Cyrille Pauthenier (Ecole Nationale Supérieure, Ulm Paris, iGEM team Paris-Bettencourt 2011, Evry 2012, Evry 2013), “Metabolic engineering with yeast display”, Doctoral School “Des Génomes aux Organismes”, Evry
2011-present	Remy Nicolle, “Methods in Systems Biology to infer and analyze biological network”, Doctoral School “Des Génomes aux Organismes”, Evry
2010-present	Julio Peironcely, “Metabolite identification”, Doctoral School “Des Génomes aux Organismes”, Evry, and University of Leiden, NL (with Thomas Hankemeier)
2008-2010	Pablo Carbonell, “Large-scale in silico identification of determinants of protein affinity and promiscuity”. Doctoral School “Des Génomes aux Organismes”, Evry, Defended his thesis in Dec. 2010

PhD committee membership:

12/2013	Reviewer for the PhD thesis of Yves Gendrault at the University of Strasbourg. Thesis title « Structuring the design flow for synthetic biology »
05/2013	Jury member for the PhD thesis of Luis Pereira de Oliviera at the University of Lyon
02/2013	Reviewer for the PhD thesis of Olivier Borkowski at the University of Paris-Sud. Thesis title « Growth-rate-dependent protein production in bacteria »
12/2011	Jury member for the Habilitation of Michel Masella in Computational Chemistry at the University of Paris-Sud
12/2010	Advisor for the Habilitation of Pablo Carbonell at U. Evry. Thesis title « Large-scale in silico Identification of Determinants of Protein Affinity and Promiscuity»
12/2010	Reviewer for the Habilitation of Gilles Truan at the University of Paris-Descarte. Thesis title « Portein substrates and protein-protein interactions with the P450 complex »
08/2010	Reviewer of the PhD thesis of Stéphanie Rialle, at U. Montpellier II. Thesis title « Methodology and bioinformatics tools to design synthetic biological systems for new human health diagnosis »
03/2010	PhD opponent for the thesis of Ernst Ahlberg Helgee, Department of Chemistry, University of Gothenberg, Sweeden. Thesis title « Improving Drug Discovery Decision Making using Machine Learning and Graph Theory in QSAR Modeling »
12/2009	Jury member for the Habilitation of Tap Ha-Duong at U. Evry. Thesis title « Multi-scale molecular modeling for protein dynamics and protein-protein interactions »
01/2009	Preside PhD committee of Nicolas Omont at U. Evry. Thesis title « Convergence and functional and structural modularity of complex systems »

Master students:

2013	Claire Baudier “Effector – transcription factor predictor using machine learning”, Systems Biology and Bioinformatics Master Pogram, University of Amsterdam
2013	Vimel Ratina “MS annotation pipeline for metabomics”, Genome Biology Informatics Master Program, U. of Evry

2013	Pierre Parutto “CAD for metabolic engineering”, EPITA Engineering School, Paris.
2012	Charles Winterhalter “Enzyme promiscuity prediction”, Genome Biology Informatics Master Program, U. Evry
2011	Green Fred “Engineering biosynthetic pathways for antibiotics production”, Master in Systems & Syntetic Biology, U. Evry
2010	Cloé Sarnowski “Engineering biosynthetic pathways for antibiotics production”, Genome Biology Informatics Master Program, U. Evry
2003	Kotu A. “Similarity and Clustering Using the Signature Molecular Descriptor”, Master Program, Tennessee Tech. U.
2002	Pophale RS “Studies of 2-dimensional Quantitative Structure Activity/Property Relationships Using Signature Molecular Descriptor”, Master Program, Tennessee Tech. U.

Postdoc and Junior Staff:

Since 2006 I have mentored about twenty post-graduate (excluding summer interns), postdoctoral and junior staffs at Sandia National Laboratories (SNL), the University of New Mexico (UNM), the Joint BioEnergy Institute (JBEI), and the University of Evry (UEVE).

2012-present	Alfred Fernández Castañé, Biochemist, Postdoc at UEVE
2012-present	Tamas Feher, Molecular Biologist, Postdoc at UEVE
2011-2012	Shashi Pandit, Computational Biologist, Postdoc at UEVE, now Assistant Professor at IISER, Pune, India
2010-2012	Ioana Popescu, Molecular Biologist and Biochemist, tenured Assistant Professor at UEVE
2010-2012	Anne-Gaelle Planson, Molecular Biologist and Biochemist, Postdoc at UEVE, now tenured researcher at INRA, Jouy, France
2010-2012	Elodie Paillard, Laboratory Technician, now staff at the PME Watchfrog, Evry, France
2009-2011	Davide Fishera, Computational Biophysicist, Postdoc at UEVE
2009-present	Pabo Carbonell, Computational Biologist, Junior Researcher at UEVE
2007-2008	Seema Singh, Chemical Engineer, Staff scientist at JBEI, Emeryville, CA
2007-2008	Dean Dibble, Chemical Engineer, Staff scientist at JBEI, Emeryville, CA
2007-2008	Brad Holmes, Chemical Engineer, Post-doc at JBEI, now senior scientist Bio-Rad Laboratories
2007-2010	Milind Misra, Computational Biology, Postdoc at SNL, now a Research Engineer at UNM
2006-2009	Jaewook Joo, Computational Biophysicist, Postdoc at SNL, now a Assitant Professor at U. Tennessee, TN
2005-2007	Sara Gaucher, Analytical chemist, Postdoc at SNL, now Associate director at Amyris Inc, Emeryville, CA
2004-2008	Zhaoduo Zhang, Molecular Biologist, Postdoc at SNL
2003-2008	Ken Sale, Computational Biologist, Postdoc at SNL, now a tenured staff member at SNL, Livermore, CA
2003-2006	William Mike Brown, Computational Biologist, Postdoc at SNL, now tenured staff member at Oak Ridge National Laboratory, TN
2002-2008	Shawn Martin, Mathematician & Computational Biologist, Postdoc then Junior Staff at SNL, now a Professor at the University of Otago, New Zealand
2001-2006	Carla Churchwell, Computational Biologist, Post-graduate at UNM
1995-2000	Tim Wilcox, Mathematician, Post-graduate at UNM