

Dr. Ivric Valaire YATAT DJEUMEN

Since May 2021 : Senior Lecturer, Department of Mathematics and Physics, National Advanced School of Engineering of Yaoundé, University of Yaoundé 1, Cameroon.

October 2018 - September 2020 : Postdoctoral research fellow, Department of Mathematics and Applied Mathematics, University of Pretoria, South Africa.

Postdoctoral funding : DST-NRF SARCHI Chair M3B2, "Mathematical Models and Methods in Bio-engineering and Biosciences". www.up.ac.za/sarchi-chair-m3b2

+237 675 30 57 26 +237 694 93 35 89 @ yatat.valaire@gmail.com @ valaire.yatat@univ-yaounde1.cm

National Advanced School of Engineering of Yaoundé, PO BOX : 8390, Yaoundé, Cameroon

Born on April 1, 1988 in Douala, Cameroon. https://www.researchgate.net/profile/Valaire_Djeumen

<https://orcid.org/0000-0001-5663-8079>



BRIEF PRESENTATION

I am an applied mathematician working in the field of mathematical modeling in life sciences (biology, ecology). In particular, I focus on mathematical tools/methods/approaches that provide new insights to specific issues arising in Ecology or in Biology.

INTERNATIONAL AWARD

2016 Ibni Oumar Mahamat Saleh Prize for 2015. The Ibni Prize has been created in 2009 by the French Mathematical Societies. The winner is selected after review by a scientific committee appointed by ICPAM (International Center for Pure and Applied Mathematics). www.smf.emath.fr/actualites-smf/proclamation-des-resultats-du-prix-ibni-o-m-saleh-2015

2014 French government fellow via the French Embassy's Cooperation and Cultural Action Service in Yaounde, Cameroon.

EDUCATION

May 18, 2018 **Ph.D. graduation, with distinction, in Applied Mathematics.** Option : Dynamical systems and Mathematical modelling. **Thesis subject** : Mathematical analysis of size-structured tree-grass interactions models for savanna ecosystems. Issued at the **University of Yaoundé I, Cameroon.** Supervisors : Prof. M. Dossa (University of Yaoundé I, Cameroon), Prof. Y. Dumont (CIRAD-UMR AMAP, France) and Prof. J.J. Tewa (University of Yaoundé I, Cameroon).

March 12, 2012 **Master with thesis and distinction in Applied Mathematics.** **Thesis subject** : Mathematical analysis of a Predator-Prey model subject to a SIS infectious disease. **University of Yaoundé I, Cameroon.** Supervisor : Prof. J.J. Tewa (University of Yaoundé I, Cameroon).

July, 2009 **Bachelor degree, with distinction, in Applied Mathematics,** University of Douala, Cameroon.

RESEARCH ACTIVITIES

My main research domain is mathematical modeling with applications mainly in Ecology and also in Epidemiology. I deal with Mathematical models that rely on (but not limited to) Ordinary Differential Equation, Impulsive Differential Equation, Partial Differential Equation and Impulsive Partial Differential Equation. Numerical scheme development based on the Nonstandard formalism to provide relevant numerical illustrations.

SKILLS AND RESEARCH INTERESTS

ODE Ordinary Differential Equation : existence and uniqueness of solutions, attractor sets and asymptotic behaviors.

IDE Impulsive Differential Equation : existence and uniqueness of solutions, attractor sets and asymptotic behaviors.

PDE Partial Differential Equation : existence and uniqueness of (mild, classic) solutions, attractor sets, asymptotic behaviors, travelling wave solutions and spreading speeds.

IPDE Impulsive Partial Differential Equation : existence and uniqueness of (mild, classic) solutions, attractor sets, asymptotic behaviors, travelling wave solutions and spreading speeds.

Numerical simulations Development and study of new algorithms, like nonstandard finite difference schemes.

Softwares Matlab, Scilab, Latex, MS office.

➤ Peer-Reviewed Papers.

- 2022 Y. Dumont, [I. V. Yatat Djeumen](#). Sterile Insect Technique with releases of sterile females. Impact on vector-borne diseases control when viruses are circulating. **Mathematical Biosciences**. 2022.
- 2022 S.R. Tega, [I. V. Yatat Djeumen](#), J.J. Tewa, P. Couteron. Spatio-temporal modelling of tree-grass dynamics in humid savannas : interplay between nonlocal competition and nonlocal facilitation. **Applied Mathematical Modelling**. 2022.
- 2022 I. Ngingone Eya, [I. V. Yatat Djeumen](#), R. M. Etoua, J. J. Tewa. Mathematical modelling of the dynamics of human schistosomiasis with time-discrete delays. **Boletín de la Sociedad Matemática Mexicana**. 2022.
- 2021 [I. V. Yatat Djeumen](#), Y. Dumont, A. Doizy, P. Couteron. A minimalistic model of vegetation physiognomies in the savanna biome. **Ecological Modelling**. Volume 440, 15 January 2021.
- 2020 J. Banasiak, Y. Dumont and [I. V. Yatat Djeumen](#). Spreading speeds and traveling waves for monotone systems of impulsive reaction-diffusion equations. **Differential Equations and Dynamical Systems**, (2020).
- 2020 Anguelov R, Dumont Y, [I. V. Yatat Djeumen](#). Sustainable vector/pest control using the permanent sterile insect technique. **Math. Meth. Appl. Sci.**, 1-22, (2020).
- 2018 [I. V. Yatat Djeumen](#), P. Couteron, and Y. Dumont. Spatially explicit modelling of tree-grass interactions in fire-prone savannas : A partial differential equations framework. **Ecological Complexity**, 36 : 290–313, (2018a).
- 2018 [I. V. Yatat Djeumen](#), A. Tchuente Tamen, Y. Dumont, and P. Couteron. A tribute to the use of minimalistic spatially-implicit models of savanna vegetation dynamics to address broad spatial scales in spite of scarce data. **BIOMATH**, 7 :1812167, (2018b).
- 2017 [I. V. Yatat Djeumen](#), P. Couteron, J. J. Tewa, S. Bowong, and Y. Dumont. An impulsive modelling framework of fire occurrence in a size-structured model of tree– grass interactions for savanna ecosystems. **Journal of Mathematical Biology**, 74 :1425–1482, (2017).
- 2014 [I. V. Yatat Djeumen](#), Y. Dumont, J. J. Tewa, P. Couteron, and S. Bowong. Mathematical analysis of a size structured tree-grass competition model for savanna ecosystems. **BIOMATH**, 3(1) :1404212, (2014).
- 2013 J.J. Tewa, [I. V. Yatat Djeumen](#), and S. Bowong. Predator-prey model with Holling response function of type II and SIS infectious disease. **Applied Mathematical Modelling**, 37(7) (2013), 4825–4841.

➤ Conference Proceedings with peer-reviewing.

- 2020 S. R. Tega II, [I. V. Yatat Djeumen](#) J.J. Tewa and P. Couteron. A Minimalistic model of spatial structuration of humid savanna vegetation, Proceedings of CARI 2020, Bruce Watson, Eric Badouel, Oumar Niang, Eds.
- 2018 [I. V. Yatat Djeumen](#) and Y. Dumont. FKPP equation with impulses on unbounded domain. In R. Anguelov, M. Lachowicz (Editors), Mathematical Methods and Models in Biosciences - BIOMATH 2017, number 1, pages 1–21, (2018).
- 2016 [I. V. Yatat Djeumen](#), J.J. Tewa and S. Bowong. What is the impact of disease-induced death in predator-prey system with infectious disease? CARI'2016, Tunisia.
- 2014 [I. V. Yatat Djeumen](#), J.J. Tewa and S. Bowong. Dynamic behaviors of a Leslie-Gower Predator-Prey model subject to a SIS infectious disease and Nonstandard Numerical Schemes. CARI'2014, Senegal.

 TEACHING EXPERIENCE

2020-to present	Lecturer of Mathematics, AT THE NATIONAL ADVANCED SCHOOL OF ENGINEERING OF YAOUNDÉ,, Cameroon. <ul style="list-style-type: none">➤ Lecture and tutorial in Algebra course.➤ Lecture and tutorial in Linear Algebra course.➤ Tutorial in Series and Integrals course.➤ Tutorial in Real Analysis course.➤ Tutorial in Probability and Statistic course.➤ Tutorial in Geometry course.
2019-2020	Lecturer of Mathematics, AT THE NATIONAL ADVANCED SCHOOL OF ENGINEERING OF YAOUNDÉ,, Cameroon. <ul style="list-style-type: none">➤ Tutorial in Real Analysis course.➤ Tutorial in Probability and Statistic course.➤ Tutorial in Linear Algebra course.➤ Tutorial in Geometry course.➤ Tutorial in Numerical analysis.

- 2019-2020 | **Lecturer of Mathematics, AT IUSM, A PRIVATE UNIVERSITY IN YAOUNDÉ-BASTOS, Cameroon.**
 > Lecture and tutorial for the Probability and Statistic course.
- 2015-2018 | **Part-time tutor of Mathematics, NATIONAL ADVANCED SCHOOL OF ENGINEERING (POLYTECHNIC) OF THE UNIVERSITY OF YAOUNDÉ I, Cameroon.**
 > Tutorial in Real Analysis course.
 > Tutorial in Probability and Statistic course.
- 2016-2018 | **Lecturer of Mathematics, AT IUSTE, A PRIVATE UNIVERSITY IN YAOUNDÉ-MENDONG, Cameroon.**
 > Lecture and tutorial for the Ordinary Differential Equations course.
 > Lecture and tutorial for the Probability and Statistic course.
 > Lecture and tutorial for the Numerical Analysis course.
 > Lecture and tutorial for the Analysis in finite dimension vector spaces course.

CONFERENCES AND WORKSHOPS

- 2022 International Congress of Mathematicians (ICM), thanks to a [CHEBYSHEV Grant](#). 6-14.07.2022, Saint Petersburg. [Russia](#).
- 2021 Mathematical Methods and Models in Biosciences (Biomath). 20-25.06.2021, Pretoria. [South Africa](#). Y. Dumont, [V. Yatat](#) : Vector-borne diseases control using Sterile Insect Technique with accidental releases of sterile females.
- 2019 Mathematical Methods and Models in Biosciences (Biomath). 16.06.2019 - 22.06.2019, Bedlewo. [Poland](#). J. Banasiak, Y. Dumont, [V. Yatat](#) : Travelling waves and spreading speeds for monotone impulsive reaction-diffusion equations.
- 2019 International Conference on Computational and Mathematical Population Dynamics, 5. 19-24 May 2019, Fort Lauderdale, [USA](#). Y. Dumont, R. Anguelov, [V. Yatat](#) : On strategies to control vectors or pests by the sterile insect technique : Some perspectives from mathematical modelling.
- 2019 South African Numerical and Applied Mathematics (SANUM) 2019. 27-29 March 2019. [South Africa](#). R. Anguelov, Y. Dumont, [V. Yatat](#) : Mathematical modelling for practical application of Sterile Insect Technique.
- 2017 Drylands, Deserts and Desertification 2017. November 6-9. Ben-Gurion University of the Negev, [Israel](#). [V. Yatat](#), P. Couteron, Y. Dumont : Modelling boundary dynamics in vegetation mosaics experiencing fire events as travelling waves.
- 2017 BIOMATH 2017. Skukuza Camp, Kruger Park, South Africa, 25-30/06/2017, [South Africa](#). [V. Yatat](#), P. Couteron, Y. Dumont : A partial differential equations framework to model fire-prone savanna dynamics. [Winner of "best Ph.D student presentation award"](#) .
- 2016 EcoSummit 2016 Ecological Sustainability, Engineering Change, 29/08-01/09/2016, Montpellier, [France](#). [V. Yatat](#), P. Couteron, Y. Dumont : Mathematical analysis of a non-local tree-grass interactions model for savanna ecosystems experiencing pulse fire perturbations.
- 2013 BIOMATH 2013, 16-21/06/2013, Sofia, [Bulgaria](#). [V. Yatat](#), P. Couteron, S. Bowong, J.J. Tewa, [Y. Dumont](#) : Mathematical analysis of a size structured tree-grass model in savanna ecosystems (**Poster**).

LANGUAGES

English ●●●●○
 French ●●●●●

STRENGTH

- > Passion
- > Motivation
- > Autonomy
- > Perceptive

REFERENCES

Prof. Yves Dumont

CIRAD-UMR AMAP, MONTPELLIER, FRANCE & *University of Pretoria*, PRETORIA, SOUTH AFRICA

@ yves.dumont@cirad.fr ; yves.dumont@up.ac.za

☎ +33 4 67 61 71 87

Prof. Etienne Takou

University of Yaoundé I, YAOUNDÉ, CAMEROON

@ etienne.takou@gmail.com

☎ +237 699 59 16 48

Prof. Pierre Couteron

IRD-UMRAMAP, MONTPELLIER, FRANCE

@ pierre.couteron@ird.fr

☎ +33 4 67 61 71 87

Prof. Jean Jules Tewa

University of Yaoundé I, YAOUNDÉ, CAMEROON

@ tewajules@gmail.com

☎ +237 677 71 13 69

Prof. Samuel Bowong

University of Douala, DOUALA, CAMEROON

@ sbowong@gmail.com@gmail.com

☎ +237 678 00 97 81

Prof. Jacek Banasiak

University of Pretoria, PRETORIA, SOUTH AFRICA

@ jacek.banasiak@up.ac.za

☎ +27 12 420 2478