



Jean CLAIRAMBAULT : short Curriculum Vitæ as of April 2025

PROFESSIONAL ADDRESS

- Institut National de Recherche en Informatique et en Automatique (INRIA), MUSCLEES team, CRI Paris, 48 rue Barrault, 75013 Paris, and
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PERSONAL INFORMATION

Born March 18, 1950, in Dakar (Senegal). French citizen. 3 children

ADMINISTRATIVE POSITION

Emeritus Senior Scientist (directeur de recherche DR1) at INRIA Paris, MUSCLEES team

TRAINING

- [2007] Habilitation thesis, Paris XI: “Mathematical models of physiological rhythms”
- [1989] MD, Paris VI: “Heart rate variability in sleeping premature and full-term newborns”
- [1978] Doctorat de 3^e cycle (PhD) in mathematics (analytical geometry), Paris VII under the supervision of F. Norguet and D. Barlet : “Intersections of analytical families of cycles”
- [1977] “Agrégation de mathématiques” (option probabilités)
- [1970-78] Studies in mathematics, Paris VI and Paris VII (IPES student)

RESEARCH: MATHEMATICAL MODELS FOR BIOLOGY AND MEDICINE

- Physiologically structured partial differential equation models for cell population dynamics
- Evolution of phenotypes with plasticity in heterogeneous cell populations under pressure
- Optimisation of anticancer drugs in cell populations with adaptive traits

A FEW PEER-REVIEWED PUBLICATIONS CHOSEN IN RECENT YEARS

- Alvarez, F.E., Clairambault, J. Phenotype divergence and cooperation in isogenic multicellularity and in cancer (<https://hal.science/hal-04145070> authors' preprint), 41(2):135-155 (DOI:10.1093/imammb/dqae005), July 2024.
- Alvarez, F. E., Carrillo, J. A., Clairambault, J. Evolution of a structured cell population endowed with plasticity of traits under constraints on and between the traits. *Journal of Mathematical Biology*, 85:64 (DOI:10.1007/s00285-022-01820-5), online, November 2022.
- Kuznetsov, M., Clairambault, J, Volpert, V. Improving cancer treatments via dynamical biophysical models. *Physics of Life Reviews*, 39:1-48 (DOI:10.1016/j.plrev.2021.10.001), December 2021.
- Shen, S., Clairambault, J. Cell plasticity in cancer cell populations (review). *F1000 Research* 9 (F1000 Faculty Rev), 635-650 (DOI:10.12688/f1000research.24803.1), June 2020.
- Clairambault, J., Pouchol, C. A survey of adaptive cell population dynamics models of emergence of drug resistance in cancer, and open questions about evolution and cancer. *BIOMATH*, vol. 8, issue 1, 23 pages (DOI:10.11145/j.biomath.2019.05.147), May 2019.
- Pouchol, C., Clairambault, J., Lorz, A., Trélat, E. Asymptotic study and optimal control of integrodifferential systems modelling healthy and cancer cells exposed to chemotherapy. *Journal de Mathématiques Pures et Appliquées* 116:268-308 (DOI: 10.1016/j.matpur.2017.10.007), August 2018.
- Chisholm, R.H., Lorenzi, T., Clairambault, J. Cell population heterogeneity and evolution towards drug resistance in cancer: biological and mathematical assessment, theoretical treatment optimisation. *Biochimica et Biophysica Acta* 1860(11):2627-2645 (DOI:10.1016/j.bbagen.2016.06.009), November 2016.
- Chisholm, R.H., Lorenzi, T., Lorz, A., Larsen, A.K., Almeida, L., Escargueil, A., Clairambault, J. Emergence of reversible drug tolerance in cancer cell populations: an evolutionary outcome of selection, non-genetic instability and stress-induced adaptation. *Cancer Research (Mathematical Oncology)* 75(6):930-939 (DOI:10.1158/0008-5472.CAN-14-2103), March 2015.