

Curriculum vitae - Jean AURIOL

Personal Details

Nationality: French
Phone: +33 6 70 59 18 04
E-mail: jean.auriol@l2s.centralesupelec.fr
Address: Laboratoire des Signaux et Systèmes,
CentraleSupélec, 3 rue Joliot Curie,
91192 Gif-sur-Yvette, France
Web page: <https://l2s.centralesupelec.fr/u/auriol-jean/>
ORCID: 0000-0002-9203-8182
CV HAL: <https://cv.archives-ouvertes.fr/jean-auriol>



Civil engineer from [Ecole des Mines](#)

Ph.D. in applied mathematics and control theory from [Ecole des Mines](#), PSL Research University.

Current position

Since 12/2019 **CNRS Permanent Researcher** (Chargé de Recherches de Classe Normale – CRCN)
L2S Laboratory, CentraleSupélec, Université Paris-Saclay, France.

Previous position

11/2018-11/2019 **Postdoctoral fellow** in [Roman Shor's](#) team, University of Calgary, Canada.
Estimation and control of subsurface process during drilling operations.

Education and key qualifications

2024 **Habilitation to conduct research** (HDR) from Université Paris Saclay.
Contributions to the robust stabilization of networks of hyperbolic systems.

2015-2018 **Ph.D** in Automatic Control and Applied Mathematics, CAS (Centre Automatique & Systèmes), Mines Paris, PSL Research University. **Advisors:** [F. DI MEGLIO](#) and [N. PETIT](#).
Robust design of backstepping controllers for systems of linear hyperbolic PDEs.

2012-2015 **MINES Paris, Civil engineer**, [specialized in applied mathematics and control theory.](#)

Research Summary

My research deals with the control and estimation of systems governed by **transport phenomena** (traffic flow, drilling, fluid or heat transport), modelled by hyperbolic Partial Differential Equations (PDEs). The specificity of my research is to build a **bridge between PDE control and time-delay systems**. Since information in such systems propagates at finite speed, their dynamics naturally involve delays. Building on this observation and on the backstepping methodology, I established that hyperbolic PDEs behave equivalently to **Integral Difference Equations** (IDEs), a class of time-delay systems. This equivalence gave rise to a new methodology for the **stabilization** and **estimation** of PDEs, combining the theory of integral equations with algebraic methods, and lets me use tools that are out of reach when working directly with the PDE. This approach allowed me to tackle configurations (distributed control, under-actuated systems, networks) where existing methods failed, while designing control laws that are simple to compute and easy to implement. The IDE representation also enabled the development of new **Lyapunov functionals**, which provide generic stability and robustness guarantees. From 2020, motivated by large-scale applications such as **traffic networks**, I extended this work to **networks** of interconnected hyperbolic systems: first chain structures, then more general networks, including PDEs coupled with finite-dimensional dynamics.

In parallel with these theoretical developments, I have consistently tested my results on realistic test-cases. In particular, I designed control and estimation strategies for torsional vibrations in **drilling**, validated against **field data**, with direct relevance to **geothermal** drilling. I also worked on the control of traffic systems. I focused recently on **model reduction**, to run my control strategies on embedded hardware without losing performance. My longer-term aim is to turn real-time estimation for transport networks into a mature theory, and to carry it through to the monitoring of critical infrastructures such as geothermal systems.

Main current research interests:

- Estimation and stabilization of networks of hyperbolic systems.
- Integral difference equations and time-delay approaches for PDE control.
- Parameter estimation for distributed dynamics.
- Efficient and reliable control of coupled stochastic and partial differential equations.
- Model reduction and implementation of PDE controllers.
- Learning-based computation of backstepping kernels (neural operators).
- Stabilization of mechanical vibrations in drilling devices.
- Estimation of geothermal systems.
- Traffic estimation and regulation.
- Adaptive control of neural fields.
- Reservoir computing.

Keywords: Distributed Parameter Systems, output feedback control, robustness, networks, Lyapunov analysis, time-delay systems, neutral systems, distributed delays, backstepping, mechanical vibrations, geothermal, drilling, traffic networks, neural fields, integral equations.

Modélisation, observation, commande, systèmes dynamiques distribués et en réseau

Publications (quantitative overview since 2016)

■ Author/co-author of 97 publications:

- **49 publications** in international journals with reviewing committees (5 additional publications are under review), 36 without PhD advisor, majority (30) in the leading control theory journals (IEEE Trans. on Automatic Control, IFAC Automatica (Elsevier), Systems & Control Letters (Elsevier), SICON); **23 as first author**; **13** as the **primary supervisor** of the first author (in italic in the publication list below).
- **42 conference papers**, 1 thesis, 1 HDR, 3 book chapters, 1 edited volume.
- **1 Patent** (US Patent 11725499, 2023) on the control of drilling devices.
- **1 Ph.D. thesis** and **1 HDR manuscript**.

■ H-index: 24, Index i10: 44, 1722 citations (September 15th 2026) according to *Google Scholar* (GS).

■ Most cited publication: J. Auriol, F. Di Meglio, *Minimum time control of heterodirectional linear coupled hyperbolic PDEs*, Automatica, vol. 71, p.300-307, 2016 (GS: 171 citations).

Institutional Activities

- | | |
|-----------|--|
| 2026-now | Head of the research team MODESTY in L2S (<i>11 permanent members, 7 Ph.D. students, 2 postdocs.</i>). |
| 2026-2029 | Industry Chair of the IFAC Technical Committee 2.6 on <i>Distributed Parameter Systems</i> . |
| 2024-2028 | Member of the Operational Committee of GDR MACS , in charge of <i>Young Researchers</i> . <i>MACS is a CNRS research group on modeling and analysis of dynamical systems. It stimulates French research by organizing workshops and supporting young researchers.</i> |
| 2025-now | Publicity chair for the American Society of Mechanical Engineers (ASME) Dynamic Systems and Control Division (DSCD) Technical Committee on <i>Distributed Parameter Systems</i> . |
| 2023-now | Chair of the technical committee on infinite-dimensional systems OSYDI for the French Society of Automatics (SAGIP). |
| 2019-now | Member of the IFAC Technical Committee 2.6 on <i>Distributed Parameter Systems</i> . |
| 2019-now | Member of the IFAC Technical Committee 2.2 on <i>Linear Control Systems</i> . |
| 2019-now | Member of the IEEE Technical Committee on <i>Distributed Parameter Systems</i> . |
| 2025 | Member of the Ph.D. award committee of the doctoral school STIC of Université Paris-Saclay. |
| 2017-2018 | Member of the <i>Research Committee</i> of MinesParis. |
| 2017-2018 | Member of the <i>Doctoral School SMI Committee</i> (Sciences et Métiers de l'Ingénieur). |

Scientific Animation

International Conferences and workshops

- | | |
|------|--|
| 2026 | Co-organizer of the workshop <i>Recent Trends in Control and Estimation of Distributed Parameter Systems</i> , at the European Control Conference (ECC), 2026, Reykjavík, Iceland. |
| 2025 | Member of the Organizing Committee of the 2025 SIAM Conference on Control Theory and its Applications (CT25), Montreal, Canada. |

- 2025 **Publicity chair** for the joint 9th IFAC Symposium on System Structure and Control (SSSC), 19th IFAC Workshop on Time Delay Systems (TDS), and 2nd IFAC Workshop on Control of Complex Systems (COSY), Gif-sur-Yvette, France.
- 2024 **Co-Organizer** of the session *Estimation and Control for Energy Storage Systems* at the European Control Conference (ECC), 2024, Stockholm, Sweden.
- 2020-2022 **Co-Founder and Organizer** of the *Distributed Parameter Systems online seminars*.
- 2021 **Co-organizer** of the 3rd international **DECOD** workshop.

National and local seminars

- 2023-now **Organizer** of the *Infinite-dimensional workshops* of the L2S.
- 2026 **Co-Organizer** of the Spring School *Agent-based simulations for production systems*.
- 2022-2026 **Organizer** of the *Ph.D. students seminars* of the L2S.
- 2016-2018 **Organizer** of the bi-monthly *laboratory scientific workshops* of Centre Automatique et Systèmes.

Editorial and reviewing activities

Journals and books

- 2026-now **Associate Editor** for *IEEE Control Systems Letters*, **L-CSS**
- 2023-now **Associate Editor** for *Systems & Control Letters*, **SCL**
- 2021 **Main Editor** of the volume *Advances in Distributed Parameter Systems* in the Springer series *Advances in Delays and Dynamics*, vol 14.

Member of Conference International Program Committee

- 2023-now **Associate Editor** for the European Control Conference, **ECC**.
- 2026 **Associate Editor** for the joint 23rd **IFAC World Congress**.
- 2025 **Associate Editor** for the joint 9th IFAC Symposium on System Structure and Control (SSSC), 19th IFAC Workshop on Time Delay Systems (TDS), and 2nd IFAC Workshop on Control of Complex Systems (COSY).
- 2022 **Associate Editor** for the 4th IFAC Workshop on Control of Systems governed by Partial Differential Equations, **CPDE**.
- 2021 **Associate Editor** for the 3rd **DECOD** workshop.
- 2020 **Associate Editor** for the 24th International Conference on System Theory, Control and Computing, **ICSTCC**.

Reviewing

- 2016-now **Reviewer** for books, international journals, and conferences in theoretical and applied control.
 - **Books:** Springer.
 - The list of top international **journals** includes: Automatica, IEEE Transactions on Automatic Control, Systems & Control Letters, IEEE Transactions on Control Systems Technology, Journal of the Franklin Institute, Journal of Process Control, SIAM Journal of Applied Mathematics, etc.
 - The list of top international **conferences** includes: IEEE Conference on Decision and Control, IEEE American Control Conference, IFAC World Congress, European Control Conference, IFAC Workshop on Control of Systems governed by Partial Differential Equations, etc.
 - **Reviewer** for the French Agence Nationale de la Recherche (ANR).

Fellowships and grants

- 2024-2029 Member of the **CNRS Joint Research Program in Africa** SPECTRE on the effect of delays on Partial Differential Equations (300 k€, 15 k€ for research team).
- 2024-2028 PI of **ANR JCJC PANOPLY** on the practical control of networks of hyperbolic systems (250 k€).
- 2023-2027 Member of 5 **H-Code projects** (around 7k€ per project for my team).
H-Code grants are funded by Université Paris-Saclay for promising collaborative projects.
- 2023 PI of the **CNRS Emergence project** AURA (7k€, 2 papers published).

Awards and distinctions

- 2025 Supervisor of A. BRAUN, who received **TDS 2025 best student paper award** for the paper co-authored with J. AURIOL and L. BRIVADIS entitled *Stabilization of a Chain of Three Hyperbolic PDEs using a Time-Delay Representation* and presented at the 19th IFAC workshop on Time-Delay Systems, Gif-sur-Yvette, France, 2025.
- 2021 Supervisor of J. REDAUD, who received **TDS 2021 best student paper award** for the paper co-authored with J. AURIOL and S.-I. NICULESCU entitled *Observer design for a class of delay systems using a Fredholm transform* and presented at the 16th IFAC workshop on time-delay systems, Guangzhou, China, 2021.
- 2020-2024 Recipient of the **Prime d'Excellence Scientifique (PES)**. Also known as *Prime d'Encadrement Doctoral et de Recherche*, the PES is awarded for 4 years.
- 2018 Finalist for the **best Ph.D. award** of the GDR MACS and Club E3A.
- 2017 **Outstanding Reviewer** for the journal *Automatica*.

Supervision of MSc, Ph.D. students and postdoctoral fellows

I have supervised 5 Ph.D. students, 4 postdoctoral fellows and 8 Master's students.

Ph.D. students:

- 2026-2029 P. MARTINET (50% with M. CICIC), *Lagrangian Micro-Macro Control of Collective Dynamics*.
- 2025-2028 A.-T. CLABAUT (35% with G. MAZANTI and I. BOUSSAADA), *Reduced-Complexity Reservoir Computing via Time-delay approaches*.
- 2024-2027 A. BRAUN (50% with L. BRIVADIS), *Stabilization of networks of hyperbolic PDE systems*.
 - A. Braun obtained the best student paper award during the 19th IFAC workshop on time-delay system.
- 2022-2025 G. VELHO (40% with R. BONALLI and I. BOUSSAADA), *Efficient and reliable control of coupled Stochastic and PDEs*. Led to 3 journal and 2 conference papers.
 - G. Velho was nominated for the best student paper award during the 19th IFAC workshop on Time-Delay System.
- 2020-2023 J. REDAUD, *Robust control of linear hyperbolic PDEs with a chain structure*. Led to 4 journal and 8 conference papers, and 1 book chapter.
 - I obtained a derogation to the habilitation (HDR) requirement to be the supervisor.
 - J. REDAUD obtained the **GDR MACS best Ph.D. award** and the **Prix de la Chancellerie**.

Postdoctoral fellows:

- 2026-2027 F. KOUDOHODE (50% with L. BRIVADIS), *State and parameter estimation of hyperbolic PDEs coupled with nonlinear ODEs*.
- 2025-2026 R. ORTIZ, *Controller tuning for hyperbolic systems*. Led to 2 journal submissions.
- 2023-2024 I. BALOGOUN (40% with G. MAZANTI and I. BOUSSAADA), *Certified stabilization of PDEs with prescribed solutions decay rate*. Led to 1 journal submission.
- 2021-2022 L. BRIVADIS (50% with A. CHAILLET), *Adaptive control of neural fields. Application to Parkinson's disease*. Led to 2 journal and 1 conference paper.
 - Dr. BRIVADIS has now been hired as CNRS Researcher in L2S.

MSc students:

- 2026 A. RAUSCHER, Master student in Master Automatique et Traitement du Signal in Paris-Saclay, working on the *Stability Analysis for Integral Difference Equations*.
- 2025 A.-T. CLABAUT, Master student in Master Mathématiques et applications in Jussieu, working on the *Reduced-Complexity Reservoir Computing via Time-delay approaches*.
- 2025 A. HADDOUCHE, Master student in Master Mathématiques appliquées in Université de Lyon, working on the *Optimal sensor placement for neural fields*.
- 2024 A. Braun, Master student in Master Mathématiques et applications in Jussieu, working on the *Stabilization of a class of Integral Difference Equations*.
- 2023 L. P. NJOUA DONGMO, Master student in Master ATSI, working on the *Smart traffic manager for speed harmonization and stop-and-go waves mitigation dedicated to connected autonomous vehicles*.

- 2021-2024 Y.-I. GAMRANI, Master student in CentraleSupélec (Parcours Recherche), working on the *Development of a numerical toolbox for the control of PDEs*.
- 2017-2018 P.-F. MASSIANI, Master student in Ecole des Mines working on *Parameters estimation in the Rijke tube*.
- 2016-2017 H. MENOU, Master student in Ecole des Mines working on *Passive vibration damping in a washing machine with a CRONE control*.

Invited presentations

Since 2016, I have given more than 35 invited presentations, at the invitation of renowned scientists on four continents. A selection is listed below.

- 2026 *Output-feedback stabilization of PDE systems with distributed actuators and sensors*, 2026 Spring School on *Control of Dynamical Systems*, one-hour invited talk (France).
- 2024 *Recent Contributions to the Stabilization of Networks of Hyperbolic Systems*, 20-mins invited talk for the IEEE CDC workshop *Control and Adaptation: Imagine What's Next* in the honour of M. KRSTIC. *CDC is the flagship international conference in control*.
- 2024 *Stick slip vibrations in drilling: modeling, estimation, avoidance*, 30 mins invited talk at the 6th Colloquium on Deep Drilling 2024, one of the most important colloquium in the field of drilling.
- 2024 *Stabilization of systems of coupled hyperbolic PDEs and characterization of their ISS properties using Lyapunov functions*, *Input-to-State Stability and its applications* (one-hour virtual seminar).

Major collaborations outside L2S

- Prof. M. KRSTIC (USA), 4 joint papers on the *control of traffic networks* and 1 survey paper, 2019-2025.
- Dr. F. BRIBIESCA-ARGOMEDO (INSA Lyon, France), 13 joint publications mostly on the *stabilization of networks of hyperbolic Partial Differential Equations*, 2019-now.
- Dr. N. KAZEMI (Canada), 11 joint papers on *machine learning-based estimation of drilling parameters*, and *seismic-while drilling estimation techniques*, 2020-now.
- Dr. D. BRESCH-PIETRI (France), 6 joint papers, recent work on the *Lyapunov analysis of time-delay systems*, 2022-now.
- Prof. Y. LE GORREC (France), 4 joint papers on *performance specifications for PDEs*, 2023-now.
- Prof. Wim MICHIELS (Belgium), 2 joint papers on the robustness of IDEs, 2025-now.

Teaching activities

Although teaching is not compulsory for CNRS researchers, I have always sought to maintain a teaching activity, as I find it essential to bring science to life and to share my research interests with students. Between 2022 and 2026, I gave more than 225 hours of teaching in French and Moroccan institutions.

- 2016-now **MINES Paris, PSL Research University**
- Coordinator and lecturer for the MSc class *Complex analysis and applications* (30h/year, 35 students), 2021-now.
 - T.A. for the MSc class on *differential, integral and stochastic calculus* (20h/year, 20 students), 2021-now.
 - T.A. for the BSc class on *Differential Calculus* (25 students, 15h/year), 2016, 2017.
 - T.A. for the BSc class on *Control of Dynamical Systems* (25 students, 16h/year), 2016-2018.
 - Expert for the *Mechatronics projects* (10 MSc students, 15h/year), 2017-2018.
 - T.A. for the MSc class on *Complex analysis* (20 MSc students, 15h/year), 2017, 2018.
- 2020-2024 **CENTRALESUPELEC**
- T.A. for the BSc class on *system modeling* (10h/year, 40 students).
 - T.A. for the BSc class on *control theory* (10h/year, 40 students), 2024.
- 2020-now **EMINES (Morocco)**
- Lecturer for the MSc class on *control theory* (15h/year, 30 students).
- 2020-2023 **University Paris-Saclay, Master ATSI**
- Lecturer for the MSc class on *Introduction to the stabilization of hyperbolic PDEs* (3h/year, 30 students).
- 2019 **University of Calgary (Canada)**
- Coordinator and Lecturer for the MSc class on *Introduction to optimization, machine learning, and control theory* (50h/year, 60 students).
 - Coordinator and Lecturer for the MSc class on *Introduction to machine learning* (20h/year, 30 students).

List of publications

All the articles are available on [HAL](#).

Journal Papers with reviewing committee

- J49 A. T. Clabaut, [J. Auriol](#), I. Boussaada, G. Mazanti, *A mathematical framework for time-delay reservoir computing analysis*, IEEE L-CSS with joint presentation to IEEE Conference on Decision and Control, Honolulu, United States, 2026.
- J48 A. Braun, [J. Auriol](#), L. Brivadis, *Stabilization of Integral Difference Equations by solving a Corona problem*, IEEE L-CSS with joint presentation to IEEE Conference on Decision and Control, Honolulu, United States, 2026.
- J47 [J. Auriol](#), *Observer design for 2×2 linear hyperbolic PDEs with distributed sensing*, IEEE Transactions on Automatic Control, 2026.
- J46 M. O. Amirat, M. Bajodek, V. Andrieu, [J. Auriol](#), C. Valentin, *Insights into the stability analysis of 2×2 linear weakly hyperbolic systems*, Automatica, 2026.
- J45 W. Michiels, [J. Auriol](#), F. Bribiesca-Argomedo, *On the filtered spectral abscissa for delay-difference equations and its role in the boundary control of hyperbolic PDEs*, SIAM Journal on Control and Optimization, 2026.
- J44 [J. Auriol](#), *State-feedback stabilization of 2×2 hyperbolic systems with distributed actuation*, SIAM Journal on Control and Optimization, 2026.
- J43 R. Vazquez, [J. Auriol](#), F. Bribiesca-Argomedo, M. Krstic *Backstepping for Partial Differential Equations: a survey*, Automatica, 2026.
- J42 D. Bresch-Pietri, [J. Auriol](#), *Existence and uniqueness of the solution to a class of Fredholm Integral Equations related to Difference Equations*, IEEE L-CSS with joint presentation to IEEE American Control Conference, New Orleans, United States, 2025.
- J41 Y. Zhang, [J. Auriol](#), H. Yu, *Operator Learning for Robust Stabilization of Linear Markov-Jumping Hyperbolic PDEs*, Automatica, 2025.
- J40 G. Velho, [J. Auriol](#), R. Bonalli, *A Gradient Descent-Ascent Method for Continuous-Time Risk-Averse Optimal Control*, Systems and Control Letters, 2025.
- J39 [J. Auriol](#), H. Lhachemi, *Boundary Control of Transport-Reaction-Diffusion Cascade with Simultaneous In-Domain and Boundary Couplings*, IMA Journal of Mathematical Control and Information, 2025.
- J38 N. Espitia, [J. Auriol](#), *Event-triggered gain scheduling of 2×2 linear hyperbolic PDEs with time and space varying coupling coefficients*, Automatica, 2025.
- J37 M. Lamarque, [J. Auriol](#), D. Bresch-Pietri, *Converse Lyapunov Theorem for Input-to-State Stability of Linear Integral Difference Equations*, Automatica, 2025.
- J36 [J. Auriol](#), A. Braun, M. O. Amirat, M. Bajodek, *Underactuated boundary control of a linearized Saint-Venant equation*, IMA Journal of Mathematical Control and Information, 2025.
- J35 I. Balogoun, [J. Auriol](#), I. Boussaada, G. Mazanti, *A novel necessary and sufficient condition for the stability of 2×2 first-order linear hyperbolic systems*, Systems and Control Letters, 2025.
- J34 [J. Auriol](#), *Output-feedback stabilization of an underactuated network of N interconnected $n + m$ hyperbolic PDE systems*, IEEE Transactions on Automatic Control, 2024.
- J33 L. P. Njoua Dongmo, [J. Auriol](#), A. Iovine, *Smart traffic manager for speed harmonization and stop-and-go waves mitigation dedicated to connected autonomous vehicles*, IEEE Transactions on Control Systems Technology, 2024.
- J32 Y. Zhang, H. Yu, [J. Auriol](#), M. Pereira, *Mean-Square Exponential Stabilization of Mixed-Autonomy Traffic*, Automatica, 2024.
- J31 G. Velho, [J. Auriol](#), R. Bonalli, I. Boussaada, *Stabilization and Optimal Control of Interconnected SDE - Scalar PDE System*, IEEE L-CSS with joint presentation to IEEE Conference on Decision and Control, Milan, 2024.
- J30 [J. Auriol](#), *Stabilization of Integral Delay Equations by solving Fredholm equations*, IEEE L-CSS with joint presentation to IEEE Conference on Decision and Control, Milan, 2024.
- J29 L. Brivadis, A. Chaillet, [J. Auriol](#), *Adaptive control of spatiotemporal delayed neural fields*, Systems and Control Letters, 2024.
- J28 J. Redaud, [J. Auriol](#), Y. Le Gorrec, *In domain dissipation assignment of boundary controlled Port-Hamiltonian systems using backstepping*, Systems and Control Letters, 2024.
- J27 J. Redaud, F. Bribiesca-Argomedo, [J. Auriol](#), *Output regulation and tracking for linear ODE-hyperbolic PDE-ODE systems*, Automatica, 2024.

- J26 L. Brivadis, C. Tamekue, [J. Auriol](#), *A comment on "Robust stabilization of delayed neural fields with partial measurement and actuation"* [Automatica 83 (2017) 262-274], Automatica, 2023.
- J25 [J. Auriol](#), F. Bribiesca-Argomedo, F. Di Meglio, *Robustification of stabilizing controllers for ODE-PDE-ODE systems: a filtering approach*, Automatica, vol. 147, p.110724, 2023.
- J24 J. Redaud, [J. Auriol](#), S.-I. Niculescu, *Stabilizing Output-feedback control law for Hyperbolic Systems using a Fredholm transformation*, IEEE Transactions on Automatic Control, vol.67 (12), p.6651-6666, 2022.
- J23 [J. Auriol](#), F. Bribiesca-Argomedo, *Observer design for $n+m$ linear hyperbolic ODE-PDE-ODE systems*, IEEE Control Systems Letters, vol. 7, p.283-288, with presentation at the IEEE Conference on Decision and Control, Cancun, 2022.
- J22 [J. Auriol](#), S. Kong, D. Bresch-Pietri, *Explicit Prediction-based Control for Linear Difference Equations with Distributed Delays*, IEEE Control Systems Society letters, with presentation at the IEEE Conference on Decision and Control, Cancun, 2022.
- J21 [J. Auriol](#), I. Boussaada, R. Shor, H. Mounier, S.-I. Niculescu, *Comparing advanced control strategies to eliminate stick-slip oscillations in drillstrings*, IEEE Access, vol. 10, p.10949-10969, 2022.
- J20 N. Espitia, [J. Auriol](#), H. Yu and M. Krstic, *Traffic flow control on cascaded roads by event-triggered output-feedback*, International Journal of Robust and Nonlinear Control (IJRNC), 2022.
- J19 H. Yu, [J. Auriol](#), M. Krstic, *Simultaneous Downstream and Upstream Output-Feedback Stabilization of Cascaded Freeway Traffic*, Automatica, vol. 136, p.110044, 2022.
- J18 [J. Auriol](#), D. Bresch-Pietri, *Robust state-feedback stabilization of an underactuated network of interconnected $n + m$ PDE systems*, Automatica, vol. 136, p.110040, 2022.
- J17 J. Redaud, [J. Auriol](#), S.-I. Niculescu, *Output-feedback control of an underactuated network of interconnected hyperbolic PDE-ODE systems*, Systems and Control Letters, vol. 154, p.104984, 2021.
- J16 [J. Auriol](#), N. Kazemi, S.-I. Niculescu, *Sensing and computational frameworks for improving drill-string dynamics estimation*, Mechanical Systems and Signal Processing, vol. 160, p.107836, 2021.
- J15 N. Kazemi, S. Nejadi, [J. Auriol](#), J. Curkan, R. Shor, K. Innannen, S. Hubbard, I. Gates, *Advanced sensing and imaging for efficient energy exploration in complex reservoirs*, Energy Reports, vol. 6, p.3104-3118, 2020.
- J14 [J. Auriol](#), U.J.F. Aarsnes, F. Di Meglio, R. Shor, *Robust control design of under-actuated 2×2 PDE-ODE-PDE systems*, IEEE Control Systems Society letters, vol. 5, no 2, p.469-474, with presentation at the IEEE Conference on Decision and Control, Jeju Island, Korea, 2020.
- J13 S. Nejadi, N. Kazemi, J.A. Curkan, [J. Auriol](#), P.R. Durkin, S.M. Hubbard, K.A. Innanen, R.J. Shor, I.D. Gates, *Look ahead of the bit while drilling: potential impacts and challenges in the McMurray Formation*, SPE Journal, vol. 25, no 05, p.2194-2205, 2020.
- J12 [J. Auriol](#), *Output feedback stabilization of an underactuated cascade network of interconnected linear PDE systems using a backstepping approach*, Automatica, vol. 117, 2020.
- J11 [J. Auriol](#), R.J. Shor, U.J.F. Aarsnes, F. Di Meglio, *Closed-loop toolface control with the bit off-bottom*, Journal of Process Control, vol. 90, p.35-45, 2020.
- J10 [J. Auriol](#), F. Di Meglio, *Robust output feedback stabilization for two heterodirectional linear coupled hyperbolic PDEs*, Automatica, vol. 115, p.108896, 2020.
- J9 [J. Auriol](#), N. Kazemi, R.J. Shor, K.A. Innanen, I.D. Gates, *A sensing and computational framework for estimating the seismic velocities of rocks ahead of the drill bit*, IEEE Transactions on Geoscience and Remote Sensing, vol. 58, no 5, p.3178-3189, 2019.
- J8 U.J.F. Aarsnes, [J. Auriol](#), F. Di Meglio, R.J. Shor, *Estimating friction factors while drilling*, Journal of Petroleum Science and Engineering, vol. 179, p.81-91, 2019.
- J7 D. Bou Saba, F. Bribiesca-Argomedo, [J. Auriol](#), M. Di Loreto, F. Di Meglio, *Stability analysis of linear 2×2 hyperbolic PDEs using a backstepping transform*, IEEE Transactions on Automatic Control, vol. 65, no 7, p.2941-2956, 2019.
- J6 [J. Auriol](#), K. A. Morris, F. Di Meglio, *Late-lumping backstepping control of partial differential equations*, Automatica, vol. 100, p.247-259, 2019.
- J5 [J. Auriol](#), F. Di Meglio, *An explicit mapping from linear first order hyperbolic PDEs to neutral systems*, Systems and Control Letters, vol. 123, p.144-150, 2019.
- J4 [J. Auriol](#), F. Bribiesca-Argomedo, D. Bou Saba, M. Di Loreto, F. Di Meglio, *Delay-robust stabilization of a hyperbolic PDE-ODE system*, Automatica, vol. 95, p.494-502, 2018.
- J3 [J. Auriol](#), U.J.F. Aarsnes, P. Martin, F. Di Meglio, *Delay-robust control design for two heterodirectional linear coupled hyperbolic PDEs*, IEEE Transactions on Automatic Control, vol. 63, no 10, p.3551-3557, 2018.
- J2 [J. Auriol](#), F. Di Meglio, *Two-sided boundary stabilization of heterodirectional linear coupled hyperbolic PDEs*, IEEE Transactions on Automatic Control, vol. 63, p.2421-2437, 2018.
- J1 [J. Auriol](#), F. Di Meglio, *Minimum time control of heterodirectional linear coupled hyperbolic PDEs*, Automatica, vol. 71, p.300-307, 2016.

Conference Papers with reviewing committee

- C42 [J. Auriol](#), Y. Wu, Y. Le Gorrec, H. Ramirez, *On the stabilization of Timoshenko beams using boundary torque control*, 27th International Symposium on Mathematical Theory of Networks and Systems, Waterloo, Canada, 2026.
- C41 A. Braun, [J. Auriol](#), L. Brivadis, *Stabilization of a chain of 3 hyperbolic PDEs with 2 inputs in arbitrary position*, IFAC World Congress, Busan, South Korea, 2026.
- C40 G. Velho, [J. Auriol](#), R. Bonalli, *A Gradient Method for Risk Averse Control of a PDE-SDE Interconnected System*, European Control Conference, Reykjavík, Iceland, 2026.
- C39 G. Velho, [J. Auriol](#), I. Boussaada, R. Bonalli, *Optimal Control of an Interconnected SDE - Parabolic PDE System*, IEEE Conference on Decision and Control, Rio de Janeiro, Brazil, 2025.
- C38 G. Velho, [J. Auriol](#), I. Boussaada, R. Bonalli, *Stabilization and Optimal Control of a Multi Input-Delayed SDE System*, joint SSSC, TDS, COSY, Gif-sur-Yvette, France, 2025.
- C37 A. Braun, [J. Auriol](#), L. Brivadis, *Stabilization of a Chain of Three Hyperbolic PDEs using a time-delay representation*, joint SSSC, TDS, COSY, Gif-sur-Yvette, France, 2025. **Best student paper award.**
- C36 Y. Zhang, [J. Auriol](#), H. Yu, *Neural-Operator Control for Traffic Flow Models with Stochastic Demand*, 5th IFAC/IEEE-CSS Workshop on Control of Systems Governed by Partial Differential Equations, Beijing, 2025.
- C35 M. O. Amirat, V. Andrieu, [J. Auriol](#), M. Bajodek, C. Valentin, *Boundary feedback control of a 2×2 weakly hyperbolic system: Lyapunov-based approach*, 5th IFAC/IEEE-CSS Workshop on Control of Systems Governed by Partial Differential Equations, Beijing, 2025.
- C34 [J. Auriol](#), N. Espitia, *Event-triggered gain scheduling of 2×2 linear hyperbolic PDEs with time and space varying coupling coefficients*, IEEE Conference on Decision and Control, Milan, 2024.
- C33 [J. Auriol](#), N. Kazemi Nojadeh, *Stick slip vibrations in drilling: modeling, estimation, avoidance*, 6th International Colloquium on Nonlinear Dynamics and Control of Deep Drilling Systems, 2024.
- C32 M. O. Amirat, V. Andrieu, [J. Auriol](#), M. Bajodek, C. Valentin, *Stability analysis of a class of 2×2 triangular hyperbolic systems*, 4th IFAC Conference on Modelling, Identification and Control of nonlinear systems, 2024.
- C31 [J. Auriol](#), F. Bribiesca Argomedo, *Output-feedback stabilization of a class of $n+m$ linear hyperbolic ODE-PDE-ODE systems*, 4th IFAC Conference on Modelling, Identification and Control of nonlinear systems, 2024.
- C30 J. Redaud, M. Darrin, N. Kazemi, [J. Auriol](#), *Physics-informed dual architecture neural networks for enhanced estimation of drilling dynamics*, IEEE International Geoscience and Remote Sensing Symposium, Athens, 2024.
- C29 Y. Zhang, [J. Auriol](#), H. Yu, *Robust Boundary Stabilization of Stochastic Hyperbolic PDEs*, IEEE American Control Conference, Toronto, 2024.
- C28 G. Velho, R. Bonalli, [J. Auriol](#), I. Boussaada, *Mean-Covariance Steering of a Linear Stochastic System with Input Delay and Additive Noise*, European Control Conference, Stockholm, 2024.
- C27 J. Redaud, [J. Auriol](#), *Backstepping stabilization of a clamped string with actuation inside the domain*, IFAC World Congress, Yokohama, 2023.
- C26 [J. Auriol](#), M. Pereira, B. Kulcsar, *Mean-square exponential stabilization of coupled hyperbolic systems with uncertain parameters*, IFAC World Congress, Yokohama, 2023.
- C25 [J. Auriol](#), D. Bresch-Pietri, *On Input-to-State Stability of Linear Difference Equations and Its Characterization with a Lyapunov Functional*, IFAC World Congress, Yokohama, 2023.
- C24 J. Redaud, [J. Auriol](#), S.-I. Niculescu, *Characterization of PI feedback controller gains for interconnected ODE - hyperbolic PDE systems*, Joint 8th IFAC Symposium on System Structure and Control, 17th IFAC Workshop on Time Delay Systems, 5th IFAC Workshop on Linear Parameter Varying Systems, Montreal, vol. 55, no 34, p.102-107, 2022.
- C23 J. Redaud, [J. Auriol](#), Y. Le Gorrec, *In-domain damping assignment of a Timoshenko-beam using state feedback boundary control*, IEEE 61st Conference on Decision and Control (CDC), Cancun, pp. 5405-5410, 2022.
- C22 L. Brivadis, A. Chaillet, [J. Auriol](#), *Online estimation of Hilbert-Schmidt operators and application to kernel reconstruction of neural fields*, IEEE 61st Conference on Decision and Control (CDC), Cancun, pp. 597-602, 2022.
- C21 J. Redaud, [J. Auriol](#), Y. Le Gorrec, *Distributed Damping Assignment for a Wave Equation in the Port-Hamiltonian Framework*, IFAC CPDE workshop on Control of Systems Governed by Partial Differential Equations, vol. 55, no 26, p.155-161, 2022.
- C20 [J. Auriol](#), R. Shor, S.-I. Niculescu, N. Kazemi, *Estimating Drill String Friction with model-based and data-driven methods*, IEEE American Control Conference, pp. 3464-3469, Atlanta, USA, 2022.
- C19 J. Redaud, [J. Auriol](#), S.-I. Niculescu, *Recursive dynamics interconnection framework applied to angular velocity control of drilling systems*, IEEE American Control Conference, pp. 5308-5313, Atlanta, USA, 2022.
- C18 A. Fathalian, N. Kazemi, [J. Auriol](#), D. O. Trad, K. A. Innanen, R. Shor, *Forward modeling of seismic-while-drilling data in anisotropic viscoelastic media with anisotropic attenuation*, 83rd EAGE annual conference,

Madrid, Spain, 2022.

- C17 J. Redaud, [J. Auriol](#), S.-I. Niculescu, *Observer Design for a class of delay systems using a Fredholm transform*, 16th IFAC workshop on Time Delay Systems, Guangzhou, China, vol. 54, no 18, p.84-89, 2021. **Best student paper award.**
- C16 J. Redaud, [J. Auriol](#), S.-I. Niculescu, *Stabilizing Integral Delay Dynamics and Hyperbolic Systems using a Fredholm Transformation*, 60th IEEE Conference on Decision and Control, Austin, Texas, USA, p.2595-2600, 2021.
- C15 [J. Auriol](#), F. Bribiesca-Argomedo, S.-I. Niculescu, J. Redaud, *Stabilization of a hyperbolic PDEs-ODE network using a recursive dynamics interconnection framework*, European Control Conference, Rotterdam, Netherlands, p.2494-2499, 2021.
- C14 [J. Auriol](#), I. Boussaada, H. Mounier, S.-I. Niculescu, *Torsional-vibrations damping in drilling systems: Multiplicity-Induced-Dominancy based design*, MTNS, Cambridge, United Kingdom, vol. 54, no 9, p.428-433, 2021.
- C13 N. Kazemi, [J. Auriol](#), K. Innanen, R. Shor, I. Gates, *Successive Full-waveform inversion of surface seismic and seismic-while-drilling datasets without low frequencies*, 82nd EAGE Annual Conference and Exhibition, Amsterdam, Netherlands, 2021.
- C12 S. Nejadi, N. Kazemi, J.A. Curkan, [J. Auriol](#), P.R. Durkin, S.M. Hubbard, K.A. Innanen, R.J. Shor, I.D. Gates, *Look ahead of the bit while drilling: potential impacts and challenges in the McMurray Formation*, the SPE Heavy Oil Conference, Calgary, 2020.
- C11 [J. Auriol](#), G. A. de Andrade, R. Vazquez, *A differential-delay estimator for thermoacoustic oscillations in a Rijke tube using in-domain pressure measurements*, IEEE Conference on Decision and Control, Jeju Island, Korea, p.4417-4422, 2020.
- C10 [J. Auriol](#), F. Bribiesca-Argomedo, D. Bresch-Pietri, *Stabilization of an underactuated 1+2 linear hyperbolic system with a proper control*, IEEE Conference on Decision and Control, Jeju Island, Korea, 2020.
- C9 H. Yu, [J. Auriol](#), M. Krstic, *Output-feedback PDE control of traffic flow on cascaded freeway segments*, IFAC World Congress, Berlin, Germany, vol. 53, p.7623-7628, 2020.
- C8 [J. Auriol](#), N. Kazemi, K. Innanen, R.J. Shor, *Combining formation seismic velocities while drilling and a PDE-ODE observer to improve the drill-string dynamics estimation*, IEEE American Control Conference, Denver, Colorado, p.3120-3125, 2020.
- C7 [J. Auriol](#), U. J. F. Aarsnes, F. Di Meglio, R.J. Shor, *Self-Tuning Torsional Drilling Model for Real-Time Applications*, IEEE American Control Conference, Denver, Colorado, p.3091-3096, 2020.
- C6 H. Yu, [J. Auriol](#), M. Krstic, *Simultaneous stabilization of Traffic Flow on Two Connected Roads Using the Aw-Rascle-Zhang Model*, IEEE American Control Conference, Denver, Colorado, p.3443-3448, 2020.
- C5 [J. Auriol](#), F. Bribiesca-Argomedo, *Delay-robust stabilization of a $n + m$ hyperbolic PDE-ODE system*, IEEE Conference on Decision and Control, Nice, France, p.4996-5001, 2019.
- C4 [J. Auriol](#), F. Di Meglio, F. Bribiesca-Argomedo, *Delay-robust stabilization of a network of two interconnected PDE systems*, IEEE American Control Conference, Philadelphia, Pennsylvania, USA, p.593-599, 2019.
- C3 P-O. Lamare, [J. Auriol](#), U. J. F. Aarsnes, F. Di Meglio, *Robust output regulation of 2×2 hyperbolic systems: Control law and Input-to-State Stability*, IEEE American Control Conference, Milwaukee, Wisconsin, USA, p.1732-1739, 2018.
- C2 [J. Auriol](#), F. Di Meglio, *Trajectory tracking for a system of two linear hyperbolic PDEs with uncertainties*, 20th World Congress of the international Federation of Automatic Control, Toulouse, France, vol. 50, no 1, p.7089-7095, 2017.
- C1 [J. Auriol](#), F. Di Meglio, *Two-sided boundary stabilization of two linear hyperbolic PDEs in minimum time*, Proc. of the 55th IEEE Conference on Decision and Control, Las Vegas, Nevada, USA, p.3118-3124, 2016.

Edited Volumes

- B1 [J. Auriol](#), J. Deutscher, G. Mazanti, G. Valmorbida, *Advances in Distributed Parameter Systems*, volume in the series *Advances in Delays and Dynamics*, vol. 14, Springer, 2021.

Book chapters

- O3 [J. Auriol](#), *Some insights on the practical control of hyperbolic systems*, Volume in “Advances in Delays and Dynamics”, Springer, 2024.
- O2 N. Espitia, [J. Auriol](#), H. Yu, M. Krstic, *Event-triggered output feedback control of traffic flow on cascaded roads*, chapter in *Advances in Distributed Parameter Systems*, volume in the series *Advances in Delays and Dynamics*, vol. 14, Springer, 2021.
- O1 J. Redaud, [J. Auriol](#), F. Bribiesca-Argomedo, *Practical output regulation and tracking for linear ODE-hyperbolic PDE-ODE systems*, chapter in *Advances in Distributed Parameter Systems*, volume in the series *Advances in*

Delays and Dynamics, vol. 14, Springer, 2021.

Patents

P1 J. Auriol and R. Shor, *Methods relating to tool face orientation*, US Patent 11725499, 2023.

Thesis and habilitation manuscripts

T2 [J. Auriol](#), *Contributions to the robust stabilization of networks of hyperbolic systems*, 2024.

T1 [J. Auriol](#), *Robust design of backstepping controllers for systems of linear hyperbolic PDEs*, PhD, MinesParis, PSL Research University, 2018.

Miscellaneous

M2 V. Andrieu, [J. Auriol](#), S. Marx, *Analyse et Contrôle de systems d'EDPs, cas du transfert*, Techniques de l'Ingénieur, 2024

M1 D. Peaucelle, D. Trentesaux, G. Alpan, R. Postoyan, [J. Auriol](#), C. Bérenguer, et al., *Groupement de Recherche MACS-Bilan 2019-2023 et Projet 2024-2028*, 2023.