

## Laboratoire d'Algorithmique Complexité et Logique

*Laboratory for Algorithmic, Complexity and Logic*

Laboratory EA 4219 of the French Ministry of Research and  
Higher Education

Founded in 1997, LACL is a basic Computer Science laboratory active in varied and complementary projects. In recent years computer security and safety have become the federating themes for its members and students.

### **Models and specifications for real-time systems, communicating systems, information systems and mobile systems.**

Timed automata, Gurevich machines (ASMs), Petri nets, process algebras, language combinations, model-checking, formal proofs, automatic code generation.

### **Probabilistic systems, dependability, performance models.**

Quantification of non-determinism, probabilistic model-checking, stochastic comparisons, quality of service, capacity planning.

### **Analysis and verification of security properties.**

Security protocols and policies, information leaks.

### **High-level languages and types.**

Formal semantics and formal proofs for high-level parallel programming, data- and control structures for the modeling of dynamical systems with a dynamical structure, topological rewriting, typed lambda calculus, compilation.

### **Decidability, complexity, automata and combinatorics.**

Word problems, expressiveness, computability.

### **Computer modeling for biology.**

Models and discrete simulations for the analysis of spatial biological processes (from regulation networks to morphogenesis processes).

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### **Directors**

Régine Laleau (director)

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Gaétan Hains (assistant director)

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### **LACL in numbers**

- 25 professors and assistant prof.
- 15 PhD students
- 7 national funded projects
- 4 international funded projects

### **Partnerships and collaborations**

LACL researchers cooperate with colleagues from 18 countries worldwide (9 in Europe) and 22 French universities or research institutes in France.

LACL is an official member of the *Télécom* and *Logiciels Libres* subgroups of the SYSTEM@TIC Paris regional cluster.

### **Industrial partners**

SAP Labs France, Trusted Logic, GIM, MADIS, Hélios biosciences, Innovimax, UbiStorage.

### **Teaching**

LACL members teach in the 2nd year MSc degree in computer security at University Paris-12.