Curriculum Vitæ
&
List of Publications

Patrick Cousot

June 7, 2007

With an appropriate viewer, clicking on texts in dark blue in this Adobe Portable Document Format (PDF) document will point to a reference on the world-wide web.

Contents

Curriculum Vitæ

Patrick Cousot

Professor of computer science;

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Web home page: www.di.ens.fr/~cousot

— Personal Information

- **Born** on December 3rd, 1948 in Pont-l'Évêque (France), (58);

  Married: Spouse Radhia Cousot, research director at CNRS in computer science;

  Two children: Laurent (28) and Thibault (25);

  Citizenship: french;

  Home address: 10 le Pré Launay
  91440 Bures sur Yvette, France;

  Home telephone: +33 1 69 28 12 83;
  Mobile: +33 6 32 19 60 27;

— Academic Background

- **Docteur d'état ès sciences mathématiques**;
  University Joseph Fourier of Grenoble [2];
  March 21st, 1978.

- **Docteur ingénieur in computer science (PhD)**;
  University Joseph Fourier of Grenoble [1];
  December 14th, 1974.
- **Engineer of the École des Mines of Nancy**;
  June 30th, 1971.

— **Professional Appointments** ;

— **École normale supérieure** (1991—Present)

- **Professor of computer science, École normale supérieure**;
  Since 1991.
- **Creation and direction of the research team on « Semantics and abstract interpretation »** of the Computer Science Laboratory of the CNRS and École normale supérieure (LIENS);
  Since 1991.
- **Dean of studies of the computer science department of the École normale supérieure**;
  Since 1992.
- **Responsibility of the computer science speciality of the École normale supérieure master**[1];
  Since 1995.

— **École polytechnique** (1984—1991)

- **Professor of computer science, École polytechnique**;
  Full-time 1984—1991; Part-time 1991—1997.
- **Creation and responsibility of the computer science courses in the Pluriscientific Program of the Advanced Undergraduate Studies of the École polytechnique**, organization of the computer center for teaching; 1985—1992.
- **Creation and direction of the « Research Group in Computer Science »** of the ***Applied Mathematics Center*** (CMAP) of the École polytechnique, 1985—1988.
- **Creation of the compulsory computer science exam at the competitive admission to the École polytechnique**. Organization of courses for the professors of the post-secondary preparatory schools [3], 1989.
- **Creation and direction of the « Computer Science Laboratory of the École polytechnique » (LIX)**;
  1988— 1991; Associated with the CNRS in 1990.
- **Creation (with M. Claude Puech) and responsibility of the master « Computer science, mathematics and applications »**[2], 1989;
  École normale supérieure, École polytechnique, Universities of Paris 6, 7 et 11;
  In charge from 1989 to 1995.

[1] former « Magistère de Mathématiques Fondamentales et Appliquées et d'Informatique » (MMFAI), 1995—2005.

[2] Now MPRI (Parisian Master in Computer Science).

- **Creation and responsibility of the Computer Science Major of the third year of the École polytechnique's "Ingénieur" program**;
  1991—1997.

— **University Paul Verlaine of Metz** (1979—1984)

- **Professor of computer science**;
  University Paul Verlaine of Metz;
  1979—1984.
- **Creation and direction of the research team on « Proof methods and static program analysis »**;
  1979—1982, CRIN (now LORIA), Nancy.
- **Creation and direction of the « Computer Science Laboratory of the University of Metz »**;
  1982—1984; Associated with the CNRS in 1984.
- **Creation and direction of the Undergraduate Program in computer science**;
  University Paul Verlaine of Metz;
  1982—1984.

— **CNRS research scientist** (1974—1979)

- **Attaché de recherche (junior research scientist), CNRS**;
  IMAG, University Joseph Fourier of Grenoble;
  1974—1978.
- **Creation and direction of the research team « Semantic analysis of programs »**;
  IMAG, University Joseph Fourier of Grenoble;
  1977—1979.
- **Chargé de recherche (senior research scientist), CNRS**;
  IMAG, University Joseph Fourier of Grenoble;
  1978—1979.

— **National service** (1973—1974)

- **National service as scientist**;
  In the « Research group on programming » of J.-D. Ichbiah, (CII, now Bull);
  1973—1974.

— **University Joseph Fourier of Grenoble** (1971—1973)

- **Research Engineer**;
  IMAG, University Joseph Fourier of Grenoble;
  1971—1973.

Fellowships, Awards and Honors

Patrick COUSOT

- **Knight of the Order of the Academic Palms**, 1990.
- **Knight of the National Order of Merit**, 1993.
- **Lauréat de la médaille d'argent du CNRS** (CNRS silver medal), 1999.
- **Doctor Honoris Causa** (Ehrendoktors des Ingenieurwissenschaften (Dr.-Ing. E.h.)) of the « Naturwissenschaftlich-Technische Fakultät I Mathematik und Informatik » faculty of the « Universität des Saarlandes », Saarbrücken, Germany, 2001.
- **Jerome C. Hunsaker Distinguihed Visiting Professor** at the MIT Department of Aeronautics and Astronautics, Cambridge, Massachusetts, USA, 2005.
- **Member of the Academia Europaea, Informatics section**, 2006.
- **Grand Prix de la Fondation d'entreprise EADS**[1] attributed by the French Academy of Sciences, 2006.

[1] EADS Corporate Research Foundation

Research

Patrick Cousot

My research work has been mainly concerned with abstract interpretation theory and practice.

3.1 Early Work

Syntax Analysis

I started my research work on *syntax analysis* by developing a bottom-up left-to-right general and optimized syntax analyzer [82]. I recently returned to that topic by formalizing Earley's algorithm as an abstract interpretation of the tree semantics of context-free grammars [38] and then generalized to grammar flow analysis and parsing [167].

Derivation of Implementations from Operational Semantics

My "Docteur-Ingénieur" thesis was about the derivation of implementations of programming languages from their operational semantics using static analysis and optimizing transformation techniques later known as partial evaluation [1].

3.2 Abstract interpretation theory

My thesis "ès Sciences Mathématiques" introduced the theory of abstract interpretation and its application to the static analysis of computer programs [2]. The main innovations were

- a lattice-theoretic, operational/transitional-semantics-based formalization of abstraction soundness and completeness in program analysis and verification [85] (based on fixpoints [25], closure operators [24], Galois connections [68], and combinations of abstractions);

- the introduction of the formal derivation of effective static analysis algorithms as abstraction of a fixpoint collecting semantics expressing the runtime properties of programs as defined by their operational semantics ([63], later refined in [29]);
- the introduction of iterative asynchronous fixpoint computation and approximation techniques with convergence acceleration (known as widening/narrowing) to handle abstraction in infinite domains (later refined in [40, 42]).

Abstract Interpretation [63, 68, 12][1] is a theory of approximation of mathematical structures, in particular those involved in the semantic models of computer systems, such as fixpoints [84, 24, 25], inductive definitions [70, 44], etc.

Abstract interpretation can be applied to the systematic construction of methods and effective algorithms to approximate undecidable or very complex problems in computer science such that the semantics, the proof, the static analysis, the verification, the safety and the security of software or hardware computer systems.

3.3 Applications of abstract interpretation

Semantic models, semantics and proof methods

Hierarchies of semantics [70, 33, 37] can be designed as abstractions, thanks to the use of bi-inductive definitions to definite both finite and infinite behaviors in a uniform way [70]. This applies to program proof methods which can be abstracted into simple induction principles [64, 13, 15, 23, 26, 27, 16, 30, 33, 37].

Static analysis

The static analysis of programs consists in analyzing programs at compile-time to gather information about the program runtime behavior in order to verify a program runtime property (e.g. the applicability of an optimizing transformation or the absence of some categories of bugs). Abstract interpretation is used to cope with undecidability so as to effectively compute an abstraction/sound approximation of the program semantics, which is precise enough to imply the property to be verified but coarse enough to be efficiently computable [17, 94].

My work on static analysis can be categorized according to [18]:

- the type of considered *programming language* (whether sequential [83, 62], procedural and recursive [66], higher-order functional [41, 43], concurrent/parallel [14], logic [28], distributed [69]), and/or to
- the type of considered *abstract properties*, whether numerical (intervals [62, 63], polyhedra [67]) or symbolic (strictness [71], grammars and set-constraints [72, 45], polynomial systems [73]), and/or to
- the type of *application* such as
  - data-flow and control-flow static analysis [32], modular separate analysis [51, 53],
  - typing and type inference [65, 46],
  - (abstract) testing [50],

[1] See [31, 35, 39, 48, 21] for introductions and surveys.

– (abstract) model-checking [74, 36, 75, 49],
– program transformation (including partial evaluation and program monitoring) [76, 143, 77],
– software verification [54, 20, 164],
– semantic-based software watermarking as an abstraction of the concrete semantics of a program [96, 79], or
– industrial safety critical software verification [19, 78, 93, 150, 80, 56, 60].

Abstract interpretation practice

Abstract interpretation-based static analysis, which automatically infers dynamic properties of computer systems, has been very successful these last years to automatically verify complex properties of real-time, safety critical, embedded systems in the automobile, avionic, nuclear and space industry [213, 52, 225, 232, 216, 223, 222, 221], in particular thanks to the ASTRÉE analyzer [93, 92, 19, 78, 194, 232, 80, 56, 60] which is used to check the absence of runtime errors in the electric flight control software of commercial planes.

3.4 Recent work

Besides the continuing work on ASTRÉE [56, 60], in particular to extend its scope of industrial applicability beyond synchronous control-command programs [222, 60], and its divulgence [201, 109, 110, 200, 202, 165, 204, 181, 205, 168, 170, 182, 171, 206, 57, 58], I have been recently interested in

- the use of nonlinear optimization (in particular semidefinite programming) to program verification [55] with the ultimate objective to integrate models of physical systems and consider functional properties in the static analysis of embedded control software [161, 212, 215],
- parametric abstraction [162, 166],
- termination proofs [55, 207, 203],
- grammar abstract interpretation [169, 22],
- abstraction of bi-inductive structural semantics [81], and
- fixpoint abstraction refinement [61].

Teaching

Patrick Cousot

I have taught in computer science at all undergraduate and graduate levels. My past teaching was centered around computer software development principles and practice while my present teaching is more directly oriented towards my research activities.

4.1 Present Teaching (2006—2007)

Postgraduate Teaching

Abstract Interpretation: application to verification and static analysis

This course which I teach to the graduate students of the École normale supérieure, École normale supérieure de Cachan, École polytechnique and University of Paris 7 specializing in computer science briefly recalls the foundations of abstract interpretation (Sec. 4.1) and covers numeric and symbolic abstract domains, their combination and refinement as well as a number of applications to the analysis and verification of numerical programs, hardware, mobile code, object-oriented programs, cryptographic protocols, etc by static analysis (some specialized topics being covered by several of my former PhD students (Bruno Blanchet, Laurent Mauborgne, David Monniaux) and colleagues (Radhia Cousot, Matthieu Martel)).

Senior Undergraduate Teaching

Foundations of Abstract Interpretation

This course which I teach to the undergraduate students of the École normale supérieure, École normale supérieure de Cachan, École polytechnique and University of Paris 7 specializing in computer science introduces the mathematical foundations for abstract interpretation (lattice theory, fixpoint theory, Galois connections) and then the constructive exact abstraction of infinitary fixpoints as well as their effective approximation using extrapolation methods (including widenings and nar-

rowings). Several applications are reviewed (type inference for the lambda-calculus, finite model checking, safety and liveness program proof methods).

Junior Undergraduate Teaching

Programming Languages and Compiler Design

This is a basic course in computer science that evolved yearly since 1992 while teaching first to the students of the École polytechnique and then the École normale supérieure specializing in computer science. The course introduces the OCAML functional programming language which is used by the students to design and implement a compiler for a simple first-order functional language on a stack machine. The course covers the different phases of a compiler (lexical and syntax analysis, attributes and semantic analysis, polymorphic type verification and inference, execution environments (for imperative, object-oriented and functional languages), the generation and optimization of intermediate and machine code, register allocation) as well as the formal specification and verification of a compiler and a short introduction to dataflow analysis and static analysis by abstract interpretation.

4.2 Past Teaching

Advanced Research Schools

I have given a number of courses in advanced summer and winter schools for researchers in computer science [99, 100, 101, 102, 103, 105, 106] as well as a course on abstract interpretation for the researchers of the IBM Watson Research Center, Hawthorne, NY [182].

Postgraduate Teaching

The MIT Course 16.399: «Abstract Interpretation »

I taught this course at MIT in 2005 while Hunsaker visiting professor at the Aeronautics and Astronautics Department. This course borrowed from the two previous courses (Sec. 4.1 and 4.1) adding an introduction to elementary mathematical topics (undecidability, complexity, classical program proof methods, naïve set theory, first order logic) and to operational semantics while going into the details of the design by abstract interpretation and implementation of a family of non-relational and relational modular forward/backward static analyzers in OCAML.

Senior Undergraduate Teaching

Semantics of Programming Languages

I taught this course from 1998 to 2003 to the students of the École normale supérieure specializing in computer science. The course covers the basic inductive, fixpoint, formal definition and abstraction methods in semantics which are used to describe in a uniform way the various semantics of first grammars and then programming languages (operational, abstract machines/compilatory, trace, relational, denotational, weakest precondition and axiomatic semantics and proof methods in their angelic, natural and demoniac variants). The essence of this course was published in 2002 [37].

Junior Undergraduate Teaching

Operating Systems and Computer Networks

I taught this course from 1993 to 1995 to the students of the École polytechnique specializing in computer science. The course introduces the principles of operating systems taking the example of UNIX® BSD. It covers the programming language C, the shell, input/output and files, processes and signals, communications and synchronization, communications between distributed processes (sockets, IP protocol), remote procedures, the client/server model and describes the internals of virtual memory, process and communication management in UNIX®.

Parallel and Distributed Numerical Computing

I taught this course from 1993 to 1997 to the students of the École polytechnique specializing in computer science and/or numerical analysis (in cooperation with the applied mathematics department). I first started the course with data parallel MIMD supercomputers (Thinking Machines Corporation CM5 connection machine) and moved in 1995 to distributed asynchronous computing on an heterogeneous local network of UNIX® machines using the Parallel Virtual Machine (PVM). The course was on parallel vector and matrix computations, the parallelization of iterative methods with synchronous and asynchronous algorithms.

Sophomore Undergraduate Teaching

Algorithms and Programming in PASCAL

I taught this course from 1985 to 1992 to all students of the École polytechnique. It covers elementary data structures (list, tables, trees, graphs), design of algorithms, concrete complexity and programming in PASCAL. The course [5] and the exercises with answers [6] were published by the École polytechnique.

Freshman Undergraduate Teaching

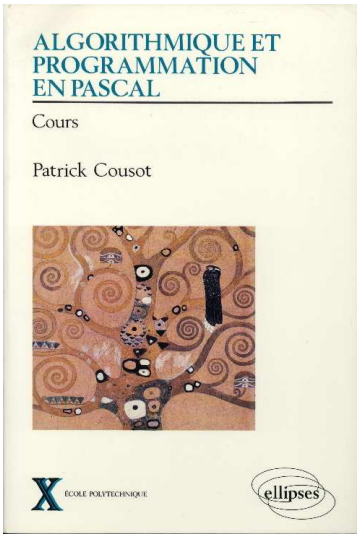
Introduction to Numerical Algorithms and to Programming in PASCAL

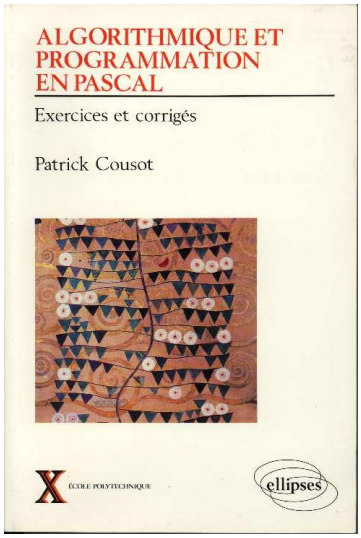
While professor of computer science at the École polytechnique, I introduced computer science in the competitive entrance examination. To do so, I had to organize courses for professors in the french « lycées » preparing the students for this exam (at year 2 of the undergraduate level). The programme was based on programming of elementary numerical algorithms in PASCAL with applications in computer graphics, mathematics, physics and chemistry. This course was accompanied by a book [3].

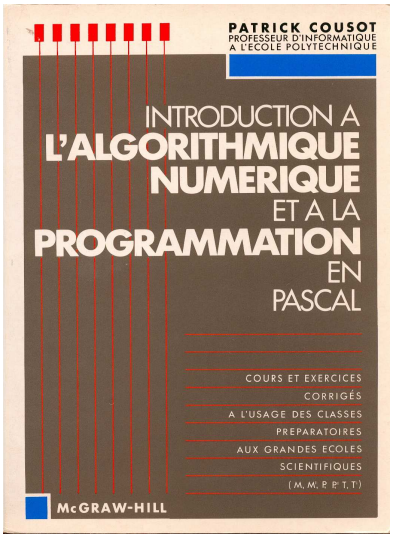
High School Level

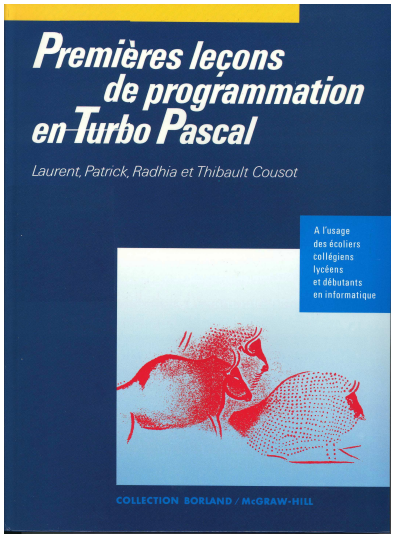
First Lessons of Programming in TURBO-PASCAL

This work, originally for my children, resulted in a coauthored book [4], which can accompany kids from elementary to high school while learning computer programming by means of 2D computer graphics drawn by a robot.


ALGORITHMIQUE ET
PROGRAMMATION
EN PASCAL
Cours
Patrick Cousot
ÉCOLE POLYTECHNIQUE
ellipses


ALGORITHMIQUE ET
PROGRAMMATION
EN PASCAL
Exercices et corrigés
Patrick Cousot
ÉCOLE POLYTECHNIQUE
ellipses


PATRICK COUSOT
PROFESSEUR D'INFORMATIQUE
A L'ECOLE POLYTECHNIQUE
INTRODUCTION A
L'ALGORITHMIQUE
NUMERIQUE
ET A LA
PROGRAMMATION
EN
PASCAL
COURS ET EXERCICES
CORRIGÉS
A L'USAGE DES CLASSES
PREPARATOIRES
AUX GRANDES ECOLES
SCIENTIFIQUES
(M, M', P, P', T, T')
McGRAW-HILL


Premières leçons
de programmation
en Turbo Pascal
Laurent, Patrick, Radhia et Thibault Cousot
A l'usage
des écoliers
collégiens
lycéens
et débutants
en informatique
COLLECTION BORLAND / McGRAW-HILL

Memberships in Scientific Associations

Patrick Cousot

- Member ACM.
- Member of the ACM Grace Murray Hopper Award selection committee (2002—2007, chair in 2006).
- Member IEEE.
- Elected member of the **IFIP working group WG 2.4 on « Software Implementation Technology »**, 1974. Honorary member since 1985.
- Election as member of the **IFIP working group WG 2.3 on « Programming Methodology »**, 1983.

Boards, Steering and Program Committees

Patrick Cousot

6.1 Board Membership

- Member of the Board of Trustees of the IMDEA-Software (Instituto madrileño de estudios avanzados — Research Institute in Software Development Technology), Madrid, Spain (2007-2011)

6.2 Steering Committees

- International Static Analysis Symposium (SAS)
- International Conference on Verification, Model Checking and Abstract Interpretation (VMCAI)
- Advisory Board of the Higher-order and Symbolic Computation Journal (HOSC)
- Advisory Board of the Asian Association for Foundations of Software (AAFS)

6.3 Program Committees

- IFIP Working Conference VSTTE'08 on Verified Software: Theories, Tools, Experiments, Toronto, Canada, 6–9th October 2008.
- SAS'07, The 14th International Static Analysis Symposium, 2007, 22–24 August 2004, Lyngby, Denmark.
- TOOLS — Europe 2007, 24–28 June 2007, ETH Zürich, Switzerland.
- ESOP'07, 16th European Symposium on Programming, 24 March—1 April 2007, Braga, Portugal.
- POPL'07, 34th Annual ACM SIGPLAN - SIGACT Symposium on Principles of Programming Languages, 17–19 January 2007, Nice, France.

- ASIAN'06, 11th Annual Asian Computing Science Conference Focusing on Secure Software and Related Issues, 6–8 December 2006, National Center of Sciences, Tokyo, Japan.
- APLAS'06, The Fourth ASIAN Symposium on Programming Languages and Systems, 8–10 November 2006, University of New South Wales, Sydney, Australia.
- SAS'06, The 13th International Static Analysis Symposium, 29–31 August 2006, Seoul, Korea.
- GETCO 2006, Eighth workshop on Geometric and Topological Methods in Concurrency, 26 August 2006, Bonn, Germany.
- PLDI'06, ACM SIGPLAN 2006 Conference on Programming Language Design and Implementation, 10–16 June 2006, Ottawa, Canada.
- VMCAI'06, 7th International Conference on Verification, Model Checking, and Abstract Interpretation, 8–10 January 2006, Charleston, South Carolina, U.S.A.
- GETCO 2005, Seventh workshop on Geometric and Topological Methods in Concurrency, 21 August 2006, San Francisco, California.
- ESOP'05, The European Symposium on Programming, 2–10 April 2005, Edinburgh, Scotland.
- GETCO 2004, Sixth workshop on Geometric and Topological Methods in Concurrency, 4 October 2004, Amsterdam, the Netherlands.
- LPAR'03, 10th International Conference on Logic for Programming Artificial Intelligence and Reasoning, 22–26 September 2003, Almaty, Kazakhstan.
- GETCO 2003, Fifth workshop on Geometric and Topological Methods in Concurrency, 6 September 2003, Marseille, France.
- GETCO 2002, Fourth workshop on Geometric and Topological Methods in Concurrency, 30–31 October 2002, Toulouse, France.
- LPAR'02, 9th International Conference on Logic for Programming Artificial Intelligence and Reasoning, 14–18 October 2002, Tbilisi, Georgia.
- GETCO 2001, Third workshop on Geometric and Topological Methods in Concurrency, 25 August 2001, Ålborg, Denmark.
- SAS'01 (chair), The 8th International Static Analysis Symposium, 16–18 July 2001, La Sorbonne, Paris, France.
- SAS'00, Static Analysis Symposium 2000, 29 June–1 July, 2000, University of California, Santa Barbara, USA.
- SAS'99, Static Analysis Symposium, 22–24 September 1999, Università ca' Foscari di Venezia, Venezia, Italy.
- SAS'98, Static Analysis Symposium, 14–16 September 1995, Università di Pisa, Pisa, Italy.

- SAS'95, Static Analysis Symposium, 25–27 September 1995, Glasgow, UK.
- SAS'94, Static Analysis Symposium, 28–30, September 1997, Facultés Universitaires Notre Dame de la Paix, Namur, Belgium.
- WSA'93 (co-chair), Third International Workshop onStatic Analysis, September 22–24, 1993, Padova, Italy.

6.4 Reviewer

Journals

ACM Computing Surveys, Acta Informatica, FAC, Information and Computation Information Processing Letters, Int. J. on Computer Math. JACM, JASE, SCP, Software: Practice and Experience, TCS, TOPLAS Trans. on Soft. Eng.

Conferences

APLAS'05, CAV'06, ECOOP'00, ESOP'96, ESOP'99, ESOP'00, ESOP'01, ESOP'03, ESOP'04, ESOP'06, FOSSACS'07, ICLP'01, KR-2000, LICS'99, MFPS'98, PADO II, PEPM'95, PEPM'97, PLDI'01, PLDI'07, PLILP'95, PLILP'96, POPL'95, POPL'96, POPL'97, POPL'02, POPL'04, SAIG'00, SAS'94, SAS'95, SAS'96, SAS'98, SAS'03, SAS'04, SAS'05, TACAS'07 VMCAI03 SCP, VMCAI'04 VMCAI'05 VMCAI'07

PhD Students

Patrick Cousot

Julien Bertrane	in progress
Laurent Mauborgne	2006 — Habilitation
Xavier Rival	2005
Jérôme Feret	2005
Antoine Miné	2004
Éric Goubault	2005 — Habilitation
David Monniaux	2001
Bruno Blanchet	2000
Franck Védrine	2000
Laurent Mauborgne	1999
Jean Goubault-Larrecq	1997 — Habilitation
Éric Goubault	1995
Bruno Monsuez	1995
François Masdupuy	1993
Jean Goubault	1993
François Bourdoncle	1992
Olivier Mallet	1992
Alain Deutsch	1992
Philippe Granger	1991
Nicolas Mercouroff	1990
Jan Stransky	1988
Dominique Méry	1983
Jean-Pierre Jung	1983
Nicolas Halbwachs	1979

Publications

Patrick Cousot

8.1 Five Most Referenced Publications

Selection from[1]:

Google™ Scholar	[63] (1876)	[68] (540)	[67] (414)	[28] (347)	[29] (239)
CiteSeer[2]	[63] (1039)	[68] (304)	[67] (234)	[28] (188)	[29] (133)

8.2 Annual Publication Selection

Selection from DBLP[3,4]:

2007 [81, 60]
2006 [22, 56]
2005 [161, 80, 55]
2004 [21, 79]
2003 [78, 151, 20, 38]
2002 [54, 53, 77, 146, 19, 37]
2001 [10, 52, 143, 18, 76]
2000 [75, 49]
1999 [35, 36]
1998 [17]
1997 [73, 46, 45, 33, 32]
1996 [47, 31, 32]
1995 [44, 72, 122]
1994 [43]
1993 [7, 71, 30]
1992 [42, 70, 28, 29]
1991 [113, 41, 40]
1990 [16]
1989 [27]
1987 [26]
1985 [15]
1984 [14]
1982 [13]
1981 [12]
1980 [69]
1979 [68]
1978 [67]
1977 [63]
1976 [62]

[1] [Reference in publication list] (Number of references).
[2] Cumulating citations with variants of the same title, e.g. due to ligatures.
[3] Including some book chapters omitted by DBLP.
[4] Digital Bibliography & Library Project.

8.3 Publication list

The publications are followed by references back to the text pages where they are cited.

Theses

[1] P. Cousot. – *Définition interprétative et implantation de langages de programmation* (in french). – Thèse de docteur-ingénieur, Université scientifique et médicale de Grenoble, Grenoble, France, 14 December 1974. 6, 11

[2] P. Cousot. – *Méthodes itératives de construction et d'approximation de points fixes d'opérateurs monotones sur un treillis, analyse sémantique de programmes* (in french). – Grenoble, France, Thèse d'État ès sciences mathématiques, Université scientifique et médicale de Grenoble, 21 March 1978. 5, 11

Books

[3] P. Cousot. – *Introduction à l'algorithmique numérique et à la programmation en Pascal* (in french). – McGraw-Hill, Paris, France, 1988. 621 p. 6, 17

[4] L. Cousot, P. Cousot, R. Cousot and T. Cousot. – *Premières leçons de programmation en Turbo Pascal* (in french). – McGraw-Hill, Paris, France, 1991. 297 p. 17

[5] P. Cousot. – *Algorithmique et programmation en Pascal (cours)* (in french). – Ellipses, Paris, France, 1992, *Cours de l'École polytechnique*. 288 p. 17

[6] P. Cousot. – *Algorithmique et programmation en Pascal (exercices et corrigés)* (in french). – Ellipses, Paris, France, 1992, *Cours de l'École polytechnique*. 271 p. 17

Conference Proceedings Edition

[7] P. Cousot, M. Falaschi, G. Filé and A. Rauzy, editors. – *Proceedings of the Third International Workshop on Static Analysis, WSA '93, Padova, Italy, 22–24 september 1993*. – Springer, Berlin, Germany, 1993, *Lecture Notes in Computer Science 724*. 293 p. 27

[8] P. Cousot, R. Cousot, O. Mycroft, A. and Editors, editors. – *Report on Dagstuhl Seminar 9535 on Abstract interpretation*. – Schloß Dagstuhl, Wadern, Germany, 28 August – 1 september 1995.

[9] P. Cousot, É. Goubault, J. Gunawardena, M. Herlihy, M. Raussen and V. Sassone, editors. – *Proceedings of the Workshop on Geometry and Topology in Concurrency Theory, GETCO '00*. – State College, 21 August 2000, *BRICS Notes Series NS-00-3*.

[10] P. Cousot, editor. – *Static Analysis, 8th International Symposium, SAS 2001, Paris, France, July 16–18, 2001, Proceedings of the* . – Springer, Berlin, Germany, 2001, *Lecture Notes in Computer Science 2126*. 439 p. 27

[11] P. Cousot, É. Goubault, J. Gunawardena, M. Herlihy, M. Raussen and V. Sassone, editors. – *Proceedings of the Workshop on Geometry and Topology in Concurrency Theory, GETCO '01*. – Elsevier Science Publishers B.V., Amsterdam, The Netherlands, 2001, *Electronic Notes in Theoretical Computer Science, vol. 39, issue 2*. http://www.elsevier.nl/locate/entcs/volume39.html.

Invited Book Chapters

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Invited Conference Lectures and Tutorials

[111] P. Cousot and R. Cousot. – Constructing program invariance proof methods. *In:* *International Workshop on Program Construction*, Château de Bonas, France, 1980. – IRIA, Rocquencourt, France.

[112] P. Cousot and R. Cousot. – Constructive design of program proof methods. *In:* *Seminar on "Algebraic Methods in Programming"*, Fontainebleau, France, 8–15 June 1982. – CNRS–NSF.

[113] P. Cousot. – Abstract interpretation of logic programs, invited advanced tutorial. *In:* *Proceedings of the Eight International Conference on Logic Programs*, edited by K. Furukawa, Paris, France, 25–28 June 1991. p. 940. – MIT Press, Cambridge, Massachusetts. 27

[114] P. Cousot and R. Cousot. – Comparison of the Galois connection and widening/narrowing approaches to abstract interpretation. *In:* *International Conference on Logic Programming, ICLP '91 Pre-Conference Workshop on Semantics-based Analysis of Logic Programs*, Paris, France, 15 May 1991. – INRIA, Rocquencourt, France.

[115] P. Cousot and R. Cousot. – Constructing a hierarchy of semantics of functional programs by abstract interpretation. *In : Proceedings of the Second International Workshop on Static Analysis, WSA '92, Bordeaux, France. BIGRE*, edited by M. Billaud, P. Castéran, M.-M. Corsini, K. Musumbu and A. Rauzy. Volume 81–82. – IRISA, Rennes, France, 23–25 september 1992.

[116] P. Cousot and R. Cousot. – Abstract interpretation of parallel programs. *In : Int. Kolloquium, Sonderforschungsbereich 124, VLSI – Entwurfsmethoden und Parallelität*, Saarbrücken, Germany, 2–3 september 1993.

[117] P. Cousot and R. Cousot. – Galois connections and abstract interpretation. *In : Mathematics of Programming Workshop on Galois Connections*, Universiteit Utrecht, The Netherlands, 13–14 september 1993.

[118] P. Cousot and R. Cousot. – Inductive definitions of semantics and connections between semantics as used in abstract interpretation. *In : MASK Meeting*, Koblenz, Germany, 6–8 October 1993.

[119] P. Cousot. – A tutorial on abstract interpretation. *In : 1994 International Conference on Computer Languages*, Toulouse, France, 16–19 May 1994.

[120] P. Cousot. – Abstract model checking. *In : Seventh International Conference on Computer Aided Verification, CAV '95*, Liège, Belgium, 5 July 1995.

[121] P. Cousot. – Combining bottom-up and top-down in abstract interpretation of logic languages. *In : Special Workshop on Abstract Interpretation of Logic Languages, WAILL'95, Eilat, Israel.* – 18–19 June 1995.

[122] P. Cousot. – Completeness in abstract interpretation. *In : Proceedings of the GULP-PRODE '95 Joint Conference on Declarative Programming*, edited by M. Sessa and M. Alpuente. *Marina di Vietri, Italy*, pp. 37–38. – Poligraf Press, Salerno, Italy, 11–14 september 1995. 27

[123] P. Cousot. – Constructing a hierarchy of semantics by abstract interpretation. *In : Workshop on Logic, Domains and Programming Languages, Darmstadt, Germany.* – 24–27 May 1995.

[124] P. Cousot. – Set-constraint-based analysis of logic programs by abstract interpretation. *In : Proceedings of the Fourth Compulog-network subgroup meeting on Programming Languages*, edited by M. Gabbrielli, *Marina di Vietri, Italy*, pp. 1–2. – 15 september 1995.

[125] P. Cousot. – From semantics to classical proof methods by abstract interpretation. *In : Workshop on "Program Correctness: Abstract Interpretation vs. Classical Verification Methods"*, Venice, Italy, 10–12 June 1996.

[126] P. Cousot. – Vérification et interprétation abstraite. *In : MOdélisation et VErification des Processus Parallèles, MOVEP'96*, École Centrale de Nantes, Nantes, 18–21 June 1996.

[127] P. Cousot. – Design of Semantics by Abstract Interpretation. *In : Mathematical Foundations of Programming Semantics, Thirteenth Annual Conference (MFPS XIII)*, Carnegie Mellon University, Pittsburgh, Pennsylvania, 23–26 March 1997.

[128] P. Cousot. – Types as abstract interpretations. *In : Meeting on Validation and Verification of Formal Descriptions, Fundamental Computer Science F.N.R.S. Contact Group*, F.U.N.D.P., Namur, Belgium, 6 May 1997.

[129] P. Cousot. – Discrete Fixpoint Approximation Methods in Program Static Analysis. *In : Seventh International Colloquium on Numerical Analysis and Computer Science with Applications, NACSA'98*, Plovdiv, Bulgaria, 13–17 August 1998.

[130] P. Cousot. – Rule-Based Specifications and their Abstract Interpretation. *In : Fourth Advanced Seminar on Foundations of Declarative Programming, ASFDP'98*, Valencia, Spain, 15 June 1998.

[131] P. Cousot. – Abstract Interpretation and Types. *In : Workshop on "Static Analysis and Types"*, Palazzo Del Bó, Padova, Italy, 17 & 18 May 1999.

[132] P. Cousot. – Abstraction in Abstract Interpretation. *In : Workshop on Refinement and Abstraction*, ETL Osaka, Japan, 15–17 November 1999.

[133] P. Cousot. – Interprétation Abstraite et Analyse Statique. *In :* *Tenth anniversaire du LIX.* – 26 May 1999.

[134] P. Cousot and R. Cousot. – Abstract Interpretation, Temporal Logic and Data Flow Analysis. *In :* *Dagstuhl Seminar 99151 on "Program Analysis"*, Schloß Dagstuhl, Wadern, Germany, 11–16 April 1999.

[135] P. Cousot. – Interprétation Abstraite. *In :* *Journées ASPROM sur la Sûreté des Logiciels*, Paris, France, 24–25 October 2000.

[136] P. Cousot. – On Completeness in Abstract Model Checking from the Viewpoint of Abstract Interpretation. *In :* *Réunion Workshop on Implementation of Logics*, Saint Gilles, La Réunion, 11–12 November 2000.

[137] P. Cousot. – An Overview of Abstract Interpretation and Program Static Analysis. *In :* *First Int. Advisory Board Workshop*, EECS Dept., KAIST, Taeduk Science Complex, Taejon, Korea, 14 June 2000.

[138] P. Cousot. – Perspectives pour l'interprétation abstraite. *In :* *Séminaire « Où, mène l'interprétation abstraite », Remise dela médialle d'argent du CNRS*, Salle Dussane, École Normale supérieure, Paris, France, 13 March 2000.

[139] P. Cousot. – Progress on Abstract Interpretation Based Formal Methods and Future Challenges. *In :* *Conference at the Occasion of Dagstuhl's Tenth Anniversary,* "Informatics — 10 Years Back, 10 Years Ahead", Saarland University Campus, Saarbrücken, Germany, 28–31 August 2000.

[140] P. Cousot and R. Cousot. – Abstract Testing versus Abstract Model-Checking. *In :* *Schloß Ringberg Seminar on Model Checking and Program Analysis*, A. Podelski and B. Steffen and M. Vardi, 20–23 February 2000.

[141] P. Cousot. – Abstract Interpretation and Applications. *In :* *Ehrendoktor*, Universität Des Sarrlandes, Saarbrücken, Germany, 29 June 2001.

[142] P. Cousot. – Abstract Interpretation for Software Verification. *In :* *Workshop on Formal Design of Safety Critical Embedded Systems (FEmSys '2001)*, Munchen, Germany, 21–23 March 2001.

[143] P. Cousot. – Design of Syntactic Program Transformations by Abstract Interpretation of Semantic Transformations. *In :* *Seventeenth International Conference on Logic Programming, ICLP '01*, Paphos, Cyprus, 26 November – 1 December 2001, pp. 4–5. 13, 27

[144] P. Cousot. – Program Static Analysis — A Brief Introduction with Applications to the Internet, keynote invited speaker. *In :* *Proceedings of the SSGRR 2001 – Advances in Infrastructure for Electronic Business, Science, and Education on the Internet*, Scuola Superiore G. Reiss Romoli, 6 – 10 August 2001.

[145] P. Cousot. – Abstract Interpretation Software Technologies. *In :* *Workshop on Software Technologies, Embedded Systems and Distributed Systems in the sixth Framework Programme, TESSS*, European Commission, Brussels, Belgium, 2 May 2002.

[146] P. Cousot. – Abstract Interpretation: Theory and Practice. *In :* *Proceedings of the Ninth International Workshop on Model Checking of Software, SPIN '2002*, edited by D. Bosnacki and S. Leue, Copenhagen, Denmark, 27–31 July 2002. *Lecture Notes in Computer Science 2318*, pp. 2–5. – Springer, Berlin, Germany. 27

[147] P. Cousot. – Abstract Interpretation: Theory and Practice. *In :* *European Joint Conferences on Theory and Practice of Software (ETAPS'02)*, Grenoble, France, 8–12 April 2002.

[148] P. Cousot. – On Abstraction in Software Verification. *In :* *Fourteenth International Conference on Computer Aided Verification, CAV '2002*, Copenhagen, Denmark, 27–31 July 2002.

[149] P. Cousot and R. Cousot. – Abstract Interpretation: A Theory of Approximation. *In :* *Special session on Abstract Interpretation, Eightteenth Workshop on the Mathematical Foundations of Programming Semantics (MFPS'02), Tulane University*, New Orleans, Louisiana, 23–26 March 2002.

[150] B. Blanchet, P. Cousot, R. Cousot, J. Feret, L. Mauborgne, A. Miné, D. Monniaux and X. Rival. – ASTRÉE: A Static Analyzer for Large Safety-Critical Software. *In:* *Schloß Dagstuhl Seminar 3451 on "Applied Deductive Verification"*, Schloß Dagstuhl, Wadern, Germany, 2–7 November 2003. 13

[151] P. Cousot. – Automatic Verification by Abstract Interpretation. *In:* *Proceedings of the Fourth International Conference on Verification, Model Checking and Abstract Interpretation (VMCAI 2003)*, edited by L. Zuck, P. Attie, A. Cortesi and S. Mukhopadhyay, Courant Institute, NYU, New York, New York, 9–11 January 2003. pp. 20–24. – Lecture Notes in Computer Science 2575, Springer, Berlin, Germany. 27

[152] P. Cousot. – A Static Analyzer for Large Safety-Critical Software. *In:* *Italian CoVer (Constraint-based Verification of Reactive systems) project meeting*, Florence, Italy, 25–26 september 2003.

[153] P. Cousot. – Abstract Interpretation of Computations. *In:* *Workshop on Robustness, Abstractions and Computations*, University of Pennsylvania, Philadelphia, 28 March 2004.

[154] P. Cousot. – Automated Verification of Infinite-State Systems by Abstract Interpretation. *In:* *Third International Workshop on Automated Verification of Infinite-State Systems (AVIS'04)*, Barcelona, Spain, 3–4 April 2004.

[155] P. Cousot. – Grand Challenges for Abstract Interpretation. *In:* *Second Workshop on Dependable Systems Evolution*, T. Hoare, P. O'Hearn, . Thimbleby & J. Woodcock (Organizers), Gresham College, London, United Kingdom, 18 March 2004.

[156] P. Cousot. – A Lagrangian relaxation and mathematical programming framework for static analysis and verification. *In:* *International Symposium on Static Analysis, SAS'04 & on Logic Program Synthesis and Transformation, LOPSTR'04*, Verona, Italy, 28 August 2004.

[157] P. Cousot. – Software Verification by Abstract Interpretation: Current Trends and Perspectives. *In:* *IV Jornadas de Programación y Lenguajes*, Málaga, Spain, 11–12 November 2004.

[158] P. Cousot. – Abstract Interpretation-based Formal Verification of Complex Computer Systems. *In:* *Minta Martin Lecture*, Department of Aeronautics and Astronautics, MIT, Cambridge, Massachusetts, 13 May 2005.

[159] P. Cousot. – Automatic Verification of Embedded Control Software with ASTRÉE. *In:* *Workshop on Critical Research Areas in Aerospace Software*, MIT, Cambridge, Massachusetts, 9 August 2005.

[160] P. Cousot. – Challenges in Abstract Interpretation for Software Safety. *In:* *French-Japanese symposium on computer security*, Keio University, Mita Campus, Global Security Research Institute, Tokyo, Japan, 5–7 september 2005.

[161] P. Cousot. – Integrating Physical Systems in the Static Analysis of Embedded Control Software. *In:* *Proceedings of the Third Asian Symposium on Programming Languages and Systems, APLAS'2005*, Tsukuba, Japan, 3–5 November 2005. pp. 135–138. – Lecture Notes in Computer Science 3780, Springer, Berlin, Germany. 13, 27

[162] P. Cousot. – Parametric Abstraction. *In:* *First International Workshop on Numerical & Symbolic Abstract Domains, NSAD'05*, Maison Des Polytechniciens, Paris, France, 21 January 2005. 13

[163] P. Cousot. – A Tutorial on Abstract Interpretation. *In:* *Industrial day on Automatic Tools for Program Verification, International Conference on Verification, Model Checking and Abstract Interpretation (VMCAI 2005)*, Maison Des Polytechniciens, Paris, France, 20 January 2005.

[164] P. Cousot. – The Verification Grand Challenge and Abstract Interpretation. *In:* *Verified Software: Theories, Tools, Experiments (VSTTE)*, ETH Zürich, Switzerland, 10–13 October 2005. 13

[165] P. Cousot. – Formalizations of Abstraction in the Abstract Interpretation Theory. *In:* *The Challenge of Software Verification*, Dagstuhl Seminar 6281, Schloß Dagstuhl, Wadern, Germany, 9–13 July 2006. 13

[166] P. Cousot. – Program Verification by Parametric Abstraction and Semi-definite Programming. *In:* *Logic and Algorithms Workshop "Constraints and Verification"*, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom, 8–12 May2006. 13

[167] P. Cousot. – The Scientific Work of Reinhard Wilhelm. *In:* *Special event to honour the 60^{th} birthday of Prof. Reinhard Wilhelm*, Universität Saarbrücken, Germany, 10 June 2006. 11

[168] P. Cousot. – Verification of Large Complex Software by Abstract Interpretation. *In:* *Eleventh Annual Asian Computing Science Conference, ASIAN 06*, National Center of Sciences, Tokyo, Japan, 6–8 December 2006. 13

[169] P. Cousot and R. Cousot. – Grammar Abstract Interpretation. *In:* *Seminar in Honor of Reinhard Wilhelm's 60^{th} Birthday*, Dagstuhl Seminar 6232, Schloß Dagstuhl, Wadern, Germany, 9–10 June 2006. 13

[170] P. Cousot. – Abstract Interpretation and Application to Static Analysis. Part I: Basic Concepts of Abstract Interpretation; Part II: Applications of Abstract Interpretation. *In:* *First IEEE & IFIP International Symposium on Theoretical Aspects of Software Engineering, TASE '07*, Shanghai, China, 5 June 2007. 13

[171] P. Cousot and R. Cousot. – Combination of Abstractions in the ASTRÉE Static Analyzer. *In:* *Eight Annual IBM Programming Language Day*, IBM Thomas J. Watson Research Center, Hawthorne, New York, 7 May2007. 13

Invited Course Lectures

[172] P. Cousot. – Corso di interpretazione astratta. – 9–12 september 1996. Dottorato di Ricerca, Dip. di Informatica.

[173] P. Cousot. – Interprétation abstraite *(in french)*. – 4 April 1996. École jeunes chercheurs en programmation, GDR Programmation du CNRS, LaBRI, Bordeaux, 25 March – 5 April 1996.

[174] P. Cousot. – Introductory course on abstract interpretation. – 12–26 August 1996. Eighth European Summer School in Logic, Language, and Information ESSLLI'96, Charles University & Czech Technical University, Prague, Czech Republic.

[175] P. Cousot. – Analyse sémantique de programmes par interprétation abstraite *(in french)*. – 20 March 1997. École jeunes chercheurs en programmation, GDR Programmation du CNRS, INRIA, Sophia-Antipolis, France, 17 – 28 March 1997.

[176] P. Cousot. – A course on abstract interpretation. – 14–19 April 1997. Indo-French School on Abstract Interpretation, JNCASR, Bangalore, India.

[177] P. Cousot. – Workshop on abstract interpretation. – 10–15 November 1997. KAIST, Taeduk Science Complex, Taejon, Korea.

[178] P. Cousot. – Corso di interpretazione astratta. – 9–12 september 1998. Dottorato di Ricerca, Dip. di Informatica, Univ. di Udine, Italy.

[179] P. Cousot. – Interprétation abstraite *(in french)*. – 1 April 1998. École jeunes chercheurs en programmation, GDR Programmation du CNRS, École des Mines de Nantes, Nantes, France, 23 March – 2 April 1998.

[180] P. Cousot. – Analyse statique de logiciels : du test exhaustif à la vérification automatique *(in french)*. – 28 January 1999. Séminaire de formation de l'Institut de l'École normale supérieure et du Collège de Polytechnique sur l'« Analyse Statique de Logiciels », Paris, France.

[181] P. Cousot. – PhD course in abstract interpretation. – 24–27 October 2006. Dipartimento di Informatica, Università Ca' Foscari Venezia, Mestre, Italy. 13

[182] P. Cousot. – Course on Abstract Interpretation. – 6 April — 11 May2007. IBM Thomas J. Watson Research Center, Hawthorne, New York. 13, 16

Recent Invited Seminar Presentations

[183] P. Cousot. – Interprétation abstraite temporelle *(in french)*. *In :* *Seminar, IRISA*, Rennes, France, 11 January 2000.

[184] P. Cousot. – Partial Completeness of Abstract Fixpoint Checking. *In :* *Seminar, ROPAS*, EECS Dept., KAIST, Taeduk Science Complex, Taejon, Korea, 13 June 2000.

[185] P. Cousot. – Research on Abstract Interpretation at ENS with a Few Words on Software Abstract Watermarking. *In :* *Seminar, CS Department*, Mc Gill University, Montreal, Canada, 20 september 2000.

[186] P. Cousot. – On the Design of Abstractions for Software Checking. *In :* *Seminar, Microsoft Research*, Redmond, Washington, 12 February 2001.

[187] P. Cousot and R. Cousot. – Abstract Interpretation Based Program Transformations. *In :* *Seminar, CLIP Laboratory*, Departamento De Inteligencia Artificial, Facultad De Informática, Universidad Politécnica De Madrid, Madrid, Spain, 12 september 2002.

[188] P. Cousot and R. Cousot. – Formalization of Program Transformation by Abstract Interpretation. *In :* *Seminar, Computer Science Department*, Courant Institute of Applied Mathematics, New York, , New York, 11 January 2002.

[189] P. Cousot. – Dérivation formelle de l'algorithme d'analyse syntaxique d'Earley par abstraction d'une sémantique des grammaires algébriques *(in french)*. *In :* *Journée de présentation des cursus en informatique*, École normale supérieure de Cachan,, France, 15 May 2003.

[190] P. Cousot. – Vérification de programmes par interprétation abstraite *(in french)*. *In :* *Seminar, ONERA-CERT*, Toulouse, France, 23 May 2003.

[191] P. Cousot. – Automatic Verification of Avionic Synchronous Safety Critical Embedded Software. *In :* *Computer Laboratory — Wednesday Seminar Series — Michaelmas Term 2004*, Cambridge University, Cambridge, United Kingdom, 20 October 2004.

[192] P. Cousot. – Verification by Abstract Interpretation. *In :* *Seminario, Dipartimento di Informatica*, Università Degli Studi Di Verona, Verona, Italy, 2 september 2004.

[193] P. Cousot. – Verification of Safety-Critical Control-Command Sofware by Abstract Interpretation. *In :* *Seminar, Computer Science Department*, Courant Institute of Mathematical Sciences, New York University, New York, New York, 13 May 2004.

[194] P. Cousot, R. Cousot and F. Randimbivololona. – ASTRÉE : Analyse Statique de logiciels Temps RÉel Embarqués *(in french)*. *In :* *Séminaire RNTL Thème 1*, Bercy, Paris, France, 1 June 2004. 13

[195] P. Cousot (Organizer). – Topical day on Abstract Interpretation. *In :* *IFIP World Computer Conference 2004*, Toulouse, France, 24 August 2004.

[196] P. Cousot. – Automatic Verification of Avionic Synchronous Safety Critical Embedded Software. *In :* *Programming Languages Seminar*, College of Computer and Information Science, Northeastern University, Boston, Massachusetts, 1 June 2005.

[197] P. Cousot. – Static Verification of Critical Embedded Software by Abstract Interpretation. *In :* *Distinguished Lecture Series*, EECS, University of California Berkeley, Berkeley, California, 9 November 2005.

[198] P. Cousot. – The ASTRÉE analyzer. *In :* *Seminar, Computer Science & Artificial Intelligence Laboratory*, Dept. of Electrical Engineering & Computer Science, MIT, Cambridge, Massachusetts, 16 June 2005.

[199] P. Cousot and R. Cousot. – Static Analysis of Embedded Control/Command Software by Abstract Interpretation. *In :* *Seminar* , Kestrel Technology, Palo Alto, California, 7 November 2005.

[200] P. Cousot. – Abstract Interpretation & Applications. *In :* *AA & EECS Seminar*, MIT, Cambridge, Massachusetts, 3 April 2006. 13

[201] P. Cousot. – Application of Abstract Interpretation to the Static Verification of Safety Critical Code. *In:* *Seminar, IBM Thomas J. Watson Research Center*, Hawthorne, New York, 20 January 2006. 13

[202] P. Cousot. – Interprétation abstraite : application aux logiciels de l'A380. *In:* *Exposé sur des questions d'actualité*, Académie des Sciences, Paris, France, 6 June 2006. 13

[203] P. Cousot. – Program Termination Proofs by Parametric Abstraction, Lagrangian Relaxation and Semi-Definite Programming. *In:* Specialised Talk, Seminar Series, Department of Computing and Information Sciences, Kansas State University, Manhattan, Kansas, 6 september 2006. 13

[204] P. Cousot. – Static Verification of Safety Critical Code by Abstract Interpretation. *In:* Distinguished Lecturer Series, Department of Computing and Information Sciences, Kansas State University, Manhattan, Kansas, 5 september 2006. 13

[205] P. Cousot and R. Cousot. – Abstract interpretation and a range of applications. *In:* *Seminario del Dipartimento di Informatica*, Università Ca' Foscari Venezia, Mestre, Italy, 23 October 2006. 13

[206] P. Cousot. – Abstract interpretation with applications to semantics and static analysis. *In:* *CS Colloquium, Departmental Seminar*, New York University, New York, New York, 9 April 2007. 13

[207] P. Cousot. – Program termination proofs by convex optimization. *In:* *Seminar, IBM Thomas J. Watson Research Center*, Hawthorne, New York, 5 January 2007. 13

Recent Working Group Presentations

[208] P. Cousot. – Abstract Interpretation and Static Analysis. *In:* *40th Meeting of the IFIP Working Group 10.4 on "Dependable computing and fault tolerance"*, Stenungsund, Sweden, 4-8 July 2001.

[209] P. Cousot. – Introduction to a Discussion on Mechanical Formal Methods for Software Verification. *In:* *IFIP WG 2.3 Meeting*, Santa Cruz, , California, 7–12 January 2001.

[210] P. Cousot. – Scaling-up with Abstract Interpretation. *In:* *IFIP-WG 2.3 meeting*, Biarritz, France, 23–28 March 2003.

[211] P. Cousot. – Series of talks on Program Verification by Abstract Interpretation. *In:* *IFIP-WG 2.3 meeting*, Biarritz, France, 23–28 March 2003.

Recent Public Research Grants

[212] P. Apkarian, P. Cousot and R. Cousot. – CONTROVERT: Vérification de Systèmes de Contrôle. – Projet ANR, ARA SSIA, 2006–2009. 13

[213] P. Cousot, R. Cousot, A. Deutsch, C. Ferdinand, É.. Goubault, N. Jones, D. Pilaud, F. Randimbivololona, M. Sagiv, H. Seidel and R. Wilhelm. – DAEDALUS: Validation of critical software by static analysis and abstract testing. – Project IST-1999-20527 of the european Fifth Framework Programme (FP5), October 2000 – October 2002. 13

[214] P. Cousot, R. Cousot, F. Irigoin, N. Halbwachs and B. Jeannet. – APRON: Analyse de PROgrammes Numériques. – Projet ACI, SI, 2004–2007.

[215] P. Cousot, R. Cousot, A. Ourghoulian and J. Souyris. – THÉSÉE Analyse Statique de Logiciels de Contrôle-Commnde. – Projet ANR, RNTL, 2006–2009. 13

[216] P. Cousot, R. Cousot and R. Randimbivololona. – Analyse Statique de logiciels Temps-RÉel Embarqués (Static Analysis of Real-Time Embedded Software). – Projet exploratoire Astrée du Réseau National de recherche et d'innovation en Technologies Logicielles (RNTL), 2003–2005, http://www.di.ens.fr/~cousot/projets/ASTREE/. 13

[217] P. Cousot, R. Cousot and M. Riguidel. – TUAMOTU: Tatouage électronique sémantique de code mobile Java. – Project RNRT 1999 n° 95, October 1999 – October 2001, http://www.telecom.gouv.fr/rnrt/rnrt/projets/res_d95_ap99.htm.

[218] P. Cousot and R. Giacobazzi. – Sécurité de systèmes distribués par interprétation abstraite. – Programme d'actions intégrées franco-italiennes Galilée, January 1999 – December 2000.

[219] P. Cousot and É. Goubault. – Analyses statiques probabilistes. – Grant CEA — ENS, n° SAV 27234/VSF, January 1999 – December 2001.

[220] P. Cousot and A. Podelski. – Model-checking et analyse statique. – Programme d'actions intégrées franco-allemandes Procope, January 2000 – December 2000.

[221] P. Cousot et al. – ES_PASS: Embedded Software Product-based ASSurance. – ITEA 2 European project, 2007–2009. Partners: AbsInt Angewandte Informatik GmbH, Airbus France, Alcatel TSD, Astrium, SAS, CEA-LIST, CS Systèmes d'Information, DaimlerChrysler AG, EADS CCR, École Normale Supérieure (ENS), Fraunhofer FIRST, GTD, Institut für Bahntechnik (IFB), INPT-IRIT of Toulouse, ONERA, PolySpace Technologies, Peugeot Citroën Automobiles (PSA), Saarland University, Siemens VDO Automotive SAS, Technical University Munich, Tel Aviv University, THALES Avionics, Technical University of Madrid. 13

[222] P. Cousot et al. – SSVAI: Space software validation using abstract interpretation. – ESA (European Space Agency) ITI (Innovative Triangle Initiative), 2006–2007. Partners: Astrium Space Transportation, CEA, École Normale Supérieure (ENS), École polytechnique. 13

Recent Industrial Research Grants

[223] P. Cousot. – ASBAPROD: Assurance Basée Produit. – grant Airbus-France — ENS Paris, 2005–2009. 13

[224] P. Cousot. – Étude des procédés de signature logicielle pour les objets mobiles écrits en Java. – Grant Thomson-CSF Communications — ENS, January 1999 – December 2000.

[225] P. Cousot. – La vérification statique de propriétés temporelles de logiciels avioniques par interprétation abstraite. – grant Airbus-France — ENS Paris, 2002–2005. 13

Miscellanea

[226] P. Cousot. – An Introduction to a Mathematical Theory of Global Program Analysis. – March 1977. Unpublished manuscript, Laboratoire IMAG, Université scientifique et médicale de Grenoble, Grenoble, France, 19 p.

[227] P. Cousot and R. Cousot. – Fixed Point Approach to the Approximate Semantic Analysis of Programs. – June 1977. Unpublished manuscript, Laboratoire IMAG, Université scientifique et médicale de Grenoble, Grenoble, France, 48 p.

[228] P. Cousot and R. Cousot. – Towards a Universal Model for Static Analysis of Programs. – January 1977. Unpublished manuscript, Laboratoire IMAG, Université scientifique et médicale de Grenoble, Grenoble, France, 90 p.

[229] P. Cousot. – Contribution to the Panel on "Abstractions in AI and Software Engineering". – 26–29 July 2000. Fourth International Symposium on Abstraction, Reformulation and Approximation, SARA '2000, Horseshoe Bay, Texas.

[230] P. Cousot. – Improving Systems Quality « challenges and Trends », An Abstract Interpretation Perspective. – 11 April 2002. Grenoble, France.

[231] P. Cousot. – Forthcoming Requirements on Software Verification. – 3–4 April 2004. Third International Workshop on Automated Verification of Infinite-State Systems (AVIS'04). Contribution to the panel on « The future of Software Verification », Barcelona, Spain.

[232] P. Cousot, R. Cousot and F. Randimbivololona. – ASTRÉE : Analyse Statique de logiciels Temps RÉel Embarqués. *In :* *Recueil des posters de présentation des projets labellisés par le RNTL*, p. 33. – Journées 2004, Rennes, France, Réseau National de Recherche et d'innovation en Technologies Logicielles, RNTL, 4 & 5 October 2004. 13

[233] P. Cousot. – Software Challenges for the Aerospace Industry and Research. *In :* *Workshop on Critical Research Areas in Aerospace Software*, Department of Aeronautics and Astronautics, MIT, Cambridge, Massachusetts, 9 August 2005.