

# Document PolyTeX 2

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# Sommaire

<b>I</b>	<b>Premier chapitre</b>	<b>3</b>
I.1	Première section . . . . .	4

Sommaire  
Concepts  
Bibliographie

Exemples  
Exercices  
Documents

# Chapitre I

## Premier chapitre

I.1	Première section . . . . .	4
-----	----------------------------	---

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)

## I.1 Première section

Premier grain . . . . .	5
-------------------------	---

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)

## Premier grain

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[48]

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)

# Index des concepts

Le gras indique un grain où le concept est défini ; l'italique indique un renvoi à un exercice ou un exemple, le gras italique à un document, et le romain à un grain où le concept est mentionné.

## G

**grain** ..... **5**

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)

# Bibliographie

- [1] H.T. Banks. *Control and estimation in distributed parameter systems*. Siam, Philadelphia, 1992.
- [2] J.T. Beale. Eigenfunction expansion for object floating in an open sea. *Comm. Pure Appl. Math.*, 30 :283–313, 1977.
- [3] C.D. Benchimol. A note on weak stabilisability of contraction semigroups. *SIAM journal on control and optimization*, 16 :373–379, 1978.
- [4] R.J. Benhabib, R.P. Iwens, and R.L. Jackson. Stability of large space structure control systems using positivity concepts. *Journal of Guidance and Control*, 4 :487–493, 1981.
- [5] D.R. Bland. *Wave theory and applications*. Oxford University Press, Oxford.
- [6] J. Bontsema and R. F. Curtain. A note on spillover and robustness for flexible systems. *IEEE Transactions on Automatic Control*, 33 :567–569, 1988.
- [7] J. Bontsema, R. F. Curtain, and J. M. Schumacher. Robust control of flexible structures : A case study. *Automatica*, 24 :177–186, 1988.
- [8] Doyle J. C. and Stein G. Multivariable feedback design : Concepts for a classical/modern synthesis. *IEEE Transactions on Automatic Control*, 26 :4–16, 1981.

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)



- [9] F. M. Callier and C. A. Desoer. An algebra of transfer functions for distributed linear time-invariant systems. *IEEE Transactions on Circuits and Systems*, 27 :320–323, 1980.
- [10] F. M. Callier and J. Winkin. Infinite dimensional system transfer functions. In *Analysis and Optimization of Systems : State and Frequency Domain Approaches for Infinite-Dimensional Systems. Proceedings of the 10th International conference, Sophia-Antipolis, France, June 9-12, 1992*, pages 72–101. Springer-Verlag, 1992.
- [11] M. J. Chen and C. A. Desoer. Necessary and sufficient conditions for robust stability of linear distributed feedback systems. *International Journal of Control*, 35 :255–267, 1982.
- [12] R. Y. Chiang and M. G. Safonov. *Robust Control Toolbox, User's Guide*. The MathWorks, Inc., Natick, Massachussets, 1988.
- [13] O. Clair. Stabilisation d'une onde plane dans un bassin à houle. *Rapport de D.E.A. Contrôle des Systèmes. Université de Technologie de Compiègne*, 1993.
- [14] R. F. Curtain. Robust stabilizability of normalized coprime factors : the infinite dimensional case. *International Journal of Control*, 51 :1173–1190, 1990.
- [15] R. F. Curtain. A synthesis of time and frequency domain methods for the control of infinite-dimensional systems : A system theoretic approach. In H. T. Banks, editor, *Control and Estimation in Distributed Parameter Systems*, volume 11, pages 171–224. Frontiers in applied mathematics, SIAM, 1992.
- [16] R. F. Curtain and K. Glover. Robust stabilization of infinite dimensional systems by finite dimensional controllers. *Systems and Control Letters*, 7 :41–47, 1986.
- [17] R. F. Curtain and B. Van Keulen. Robust control with respect to coprime factors of infinite-dimensional positive real systems. *IEEE Transactions on Automatic Control*, 37 :868–871, 1992.

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)



- [18] R. F. Curtain and Y. Zhou. A weighted mixed-sensitivity  $h_\infty$  control design for irrational transfer matrices. In *proceedings of the 4th Computation and Control Conference, Bouman, Montana, August 1994*, 1994.
- [19] R.F. Curtain. A comparison of finite dimensional controller designs for distributed parameter systems. Technical report, INRIA, Rocquencourt, France, 1992.
- [20] R.F. Curtain, J.L. Bensoussan, and eds. Lions, J.L. *Analysis and Optimization of Systems : State and Frequency Domain Approaches for Infinite-Dimensional Systems. Proccedings of the 10th International conference, Sophia-Antipolis, France, June 9-12, 1992*. Springer-Verlag, 1992.
- [21] R.F. Curtain and H.J. Zwart. *Lecture notes on distributed parameter systems, preprint*. Springer Verlag, Berlin, 1992.
- [22] M.C. Delfour and M.P. Polis. On issues related to stabilization of large flexible structure. In H. T. Banks, editor, *Control and Estimation in Distributed Parameter Systems*, volume 11, pages 171–224. Frontiers in applied mathematics, SIAM, 1992.
- [23] P. Dorato, R. Tempo, and G. Muscato. Bibliography on robust control. *Automatica*, 29 :201–213, 1993.
- [24] J.C Doyle, K. Glover, P. P. Khargonekar, and B. A. Francis. State-space solutions to standard  $h_2$  and  $h_\infty$  control problems. *IEEE Transactions on Automatic Control*, 34 :831–847, 1989.
- [25] A. El-Jai and M. Amouroux. *Automatique des systèmes distribués*. Hermes, Paris, 1990.
- [26] B. A. Francis. *A Course in  $H_\infty$  Control Theory*. Lecture notes in control and information sciences, Springer-Verlag Berlin, 88.
- [27] J. S. Freudenberg and P. D. Looze. Right half plane poles and zeros and design tradeoffs in feedback systems. *IEEE Transactions on Automatic Control*, 30 :555–565, 1985.
- [28] T. T. Georgiou and M. C. Smith. Topological approaches to robustness. In *Analysis and Optimization of Systems : State and Frequency Domain Approaches for Infinite-Dimensional Systems*.

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)

*Proceedings of the 10th International conference, Sophia-Antipolis, France, June 9-12, 1992*, pages 232–241. Springer-Verlag, 1992.

- [29] J.S. Gibson. An analysis of optimal modal regulation :convergence and stability. *SIAM journal on Control and Optimisation*, 19 :686–707, 1981.
- [30] J.S. Gibson and A. Adamian. Approximation theory for linear-quadratic-gaussian optimal control of flexible structures. *SIAM journal on Control and Optimisation*, 29 :1–37, 1981.
- [31] J.S. Gibson and A. Adamian. A comparison of three approximation schemes for optimal control of a flexible structure. In H. T. Banks, editor, *Control and Estimation in Distributed Parameter Systems*, volume 11, pages 85–124. Frontiers in applied mathematics, SIAM, 1992.
- [32] K. Glover. Robust stabilization of linear multivariable systems : relations to approximation. *International Journal of Control*, 43 :741–766, 1986.
- [33] K. Glover, R.F. Curtain, and J.R. Partigton. Realisation and approximation of linear infinite-dimensional systems with error bounds. *SIAM journal on control and optimization*, 26 :863–898, 1988.
- [34] P. Grisvard. *Elliptic problems in nonsmooth domains*. Pitman, 1985.
- [35] G. Gu, P.P. Khargonekar, and Lee E.B. Approximation of infinite dimensional systems. *IEEE Transactions on Automatic Control*, 34 :610–618, 1989.
- [36] Kwakernaak H. *Robust Control and  $H_\infty$  Optimisation*. Course for the Dutch Graduate Network on Systems and Control, 1991.
- [37] A. Haraux. On a completion problem in the theory of distributed control of wave equations. In Pitman, editor, *Nonlinear partial differential equations and their applications, Collège de France, Séminaire 87/88*. Research Notes in Math., 1988.

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)

- [38] G. Joly, s. Mottelet, and J.P. Yvon. Application of  $h_\infty$  control to wave generators in a canal. In *Proceedings of the SIAM Symposium on Control Problems in Industry, San Diego, 22-23 July 1994, to appear*. Birkaiser, 1994.
- [39] G. Joly-Blanchard, S. Mottelet, and J.P. Yvon. Analysis of the control of wave generators in a canal. In *to appear in Proc. IFIP Conf. on Control of Partial Differential Equations, Laredo, Spain, 5-9 September 1994*. Marcel Dekker, 1994.
- [40] G. Joly-Blanchard, F. Quentin, and J.P. Yvon. Optimal control of waves generators in a canal. In *Proc. IFIP Conf. on System Modelling and Opt. 1991, Zurich, 1991*. Springer-Verlag.
- [41] S. M. Joshi. Control of large flexible space structures. *Lecture notes in control and information sciences, Springer Verlag*, 104, 85.
- [42] Kato. *Perturbation theory for linear operators*. Springer Verlag, 1980.
- [43] P. P. Khargonekar, H. Ozbay, and A. Tannenbaum. Four-block problem : Stable plants and rotational weights. *International Journal of Control*, 50 :1013–1023, 1989.
- [44] H. Kwakernaak. Robust control and  $h_\infty$  optimization-tutorial paper. *Automatica*, 29 :255–173, 1993.
- [45] H. Kwakernaak and R. Sivan. *Linear Optimal Control Systems*. Wiley-Interscience, New York, 1972.
- [46] I. Lasiecka and R. Triggiani. Finite rank, relatively bounded perturbations of c-semigroups, part ii : Spectrum allocation and riesz basis in parabolic and hyperbolic feedback systems. *Annali di Matematica pura ed applicata, CXLIII, (IV)* :47–100, 1986.
- [47] J. Leblond and J.P. Marmorat. Boundary control and observation of some one-dimensional vibrating structure : regularity and stabilization. Technical report, INRIA, Rocquencourt, France, 1991.

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)

- [48] C. K. Lee and F.C. Moon. Modal sensors/actuators. *Journal of applied Mechanics, Transactions of the ASME*, 57 :434–441, 1990.
- [49] K. Lenz, H. Ozbay, A. Tannenbaum, J. Turi, and B. Morton. Frequency domain analysis and robust control design for an ideal flexible beam. *Automatica*, 27 :947–961, 1991.
- [50] N. Levinson. *Gap and density theorems*. AMS Colloquium Publications 26, 1940.
- [51] D. K. Lindner, K. M. Reichard, and L. M. Tarkenton. Zeros of modal models of flexible structures. *IEEE Transactions on Automatic Control*, 38 :1384–1388, 1993.
- [52] D.K. Lindner, K.M. Reichard, and L.M. Tarkenton. Zeros of modal models of flexible structures. *IEEE Transactions on Automatic Control*, 30 :555–565, 1985.
- [53] J.L. Lions. *Contrôle optimal des systèmes gouvernés par des équations aux dérivées partielles*. Dunod Gauthier-Villars, coll. Etudes Mathématiques, Paris, 1968.
- [54] J.L. Lions. *Quelques méthodes de résolution des problèmes aux limites non linéaires*. Dunod, Paris, 1969.
- [55] J.L. Lions. *Contrôlabilité exacte, perturbation et stabilisation de systèmes distribués*. Masson, Collection Recherches en Mathématiques Appliquées, Paris, 1988.
- [56] J.L. Lions. Pointwise control for distributed systems. In H. T. Banks, editor, *Control and Estimation in Distributed Parameter Systems*, volume 11, pages 1–40. Frontiers in applied mathematics, SIAM, 1992.
- [57] J.L. Lions and E. Magenes. *Problèmes aux limites non homogènes et applications*. Dunod, coll. Travaux et Recherches Mathématiques, Paris, 1968.
- [58] R. Lozano-Leal and M.J. Suresh. Strictly positive real transfer functions revisited. *IEEE Transactions on Automatic Control*, 35 :1243–1245, 1990.
- [59] J. M. Maciejowski. *Multivariable feedback design*. Addison-Wesley, 1989.

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)

- [60] O. Morgül. Dynamic boundary control of an euler-bernoulli beam. *IEEE Transactions on Automatic Control*, 37 :639–642, 1992.
- [61] O. Morgül. On the stabilization of the wave equation. In *Analysis and Optimization of Systems : State and Frequency Domain Approaches for Infinite-Dimensional Systems. Proceedings of the 10th International conference, Sophia-Antipolis, France, June 9-12, 1992*, pages 531–542. Springer-Verlag, 1992.
- [62] O. Morgül. Control and stabilization of a rotating flexible structure. *Automatica*, 30 :351–356, 1994.
- [63] S. Mottelet. *Quelques aspects théoriques et numériques du contrôle d'un bassin de carènes*. PhD thesis, Université de Technologie de Compiègne, 1994.
- [64] s. Mottelet, G. Joly, and J.P. Yvon. Design of a feedback controller for wave generators in a canal using  $h_\infty$  methods. In *Proc. IFIP Conf. on System Modelling and Opt. 1993*, Compiègne, 1993. Springer-Verlag.
- [65] M. Munz. 1999.
- [66] A. Ndiaye. Modélisation et contrôle de la propagation de la houle dans une cuve rectangulaire. *Rapport de D.E.A. Ecole Nationale Supérieure de Techniques avancées*, 1994.
- [67] H. Ozbay and A. Tannenbaum. A skew toeplitz approach to the  $h_\infty$  optimal control of multi-variable distributed systems. *SIAM journal on control and optimization*, 28 :653–670, 1990.
- [68] H. Ozbay and A. Tannenbaum. On the structure of suboptimal  $h_\infty$  controllers in the sensitivity minimization problem for distributed stable plants. *Automatica*, 27 :293–305, 1991.
- [69] S. Pohjolainen. Computation of transmission zeros for distributed parameter systems. *International Journal of Control*, 33 :199–212, 1981.
- [70] V.M. Popov. *Hyperstability of Automatic Control Systems*. Springer, New York, 1973.

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)

- [71] F. Quentin. *Contrôle Optimal de batteurs à houle*. PhD thesis, Université de Technologie de Compiègne, 1992.
- [72] G. Raugel. *Résolution numérique de problèmes elliptiques dans des domaines avec coins*. PhD thesis, Université de Rennes, 1978.
- [73] A.J. Roberts. Transient free surface flows generated by moving vertical plate. *Q.J. Mech. Appl. Math.*, 40, 1987.
- [74] D.L. Russel. *Mathematics of finite-dimensional control systems*. Dekker, New York, 1979.
- [75] D.L. Russel. On mathematical models for the elastic beam with frequency-proportional damping. In H. T. Banks, editor, *Control and Estimation in Distributed Parameter Systems*, volume 11, pages 125–169. Frontiers in applied mathematics, SIAM, 1992.
- [76] M.G. Safonov and Flashner H. Modeling and robustness issues in control design for flexible structures. In *Proc. American Control Conference, June 1989*, pages vol.3, 2527–2531, 1989.
- [77] L. Schwartz. *Etude des sommes d'exponentielles*. Herman, 1959.
- [78] J.J.E. Slotine and W. Pi. *Applied Nonlinear Control*. Prentice-Hall, Englewood Cliffs, 1991.
- [79] A. Stoorvogel. *The  $H_\infty$  control problem*. Prentice-Hall, Englewood Cliffs, 1992.
- [80] B. Van Keulen.  *$H_\infty$  control for infinite dimensional systems : a state space approach*. PhD thesis, University of Groningen, The Netherlands, 1993.
- [81] M. Vidyasagar. *Control system synthesis. A factorization approach*. MIT Press, Cambridge, 1985.
- [82] R. M. Young. *An introduction to nonharmonic Fourier series*. Academic Press, 1980.

[Sommaire](#)  
[Concepts](#)  
[Bibliographie](#)

[Exemples](#)  
[Exercices](#)  
[Documents](#)