

<p>Curriculum Vitae de Marcel Crochet, Recteur honoraire de l'Université catholique de Louvain</p>
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Né à Uccle, Belgique, le 23 novembre 1938
Epoux de Brigitte Mathot, père de Vanessa (1973) et Nicolas (1976)
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Formation

1955	Humanités gréco-latines, Institut Ste Marie, Schaerbeek
1956	Scientifique spéciale, Institut St Louis, Bruxelles
1961	Ingénieur civil électricien et mécanicien, Université Catholique de Louvain
1964	<i>M. Sc.</i> (maîtrise), University of California, Berkeley
1966	<i>Ph. D.</i> (doctorat), University of California, Berkeley

Carrière académique

1966-2004	Chargé de cours, professeur (1972), professeur ordinaire (1975) à l'UCL
1967, 70, 71	<i>Visiting assistant professor</i> , University of California, Berkeley
1969	<i>Visiting Scientist</i> , Bell Laboratories, Murray Hill, New Jersey
1972-87	Professeur visiteur, Facultés N-D de la Paix, Namur
1977	Professeur visiteur de Mécanique, Université Paris VI
1980	<i>Visiting Professor of Chemical Engineering</i> , University of Delaware
1980	<i>Visiting Scientist</i> , Bell Laboratories, Murray Hill, New Jersey
1981-88	<i>Consultant</i> , Center for Composite Materials, University of Delaware
1992	Titulaire de la " <i>Springer Chair in Mechanical Engineering</i> ", University of California, Berkeley

Responsabilités passées

1972-1975	Secrétaire académique de la Faculté des Sciences Appliquées
1972-1980	Fondateur et organisateur des Concerts de Midi à Louvain-la-Neuve
1976-1980	Délégué de l'Administrateur Général
1976-1992	Responsable de l'Unité de Mécanique Appliquée
1977-1994	Président des jurys d'examens de la Faculté des Sciences Appliquées
1988-1996	Créateur et administrateur délégué de la S.A. Polyflow
1988-1993	Représentant de la Belgique au Comité Scientifique de l'OTAN
1988-1992	Président de la commission de Mécanique Théorique et Appliquée, Académie des Sciences de Belgique
1989-1990	Président du Corps Académique de l'Université catholique de Louvain
1991-1994	Membre du Conseil de Recherche
1992-1994	Président du Département de Mécanique
1994-1995	Doyen de la Faculté des Sciences Appliquées
1995-2004	Recteur de l'Université catholique de Louvain

- 2001-2009 Membre du Conseil d'administration de l'Agence universitaire de la francophonie
- 2004-2009 Expert auprès de la Ministre de l'Enseignement supérieur, de la Recherche scientifique et des Relations internationales (Région wallonne et Communauté française)

Responsabilités présentes

- 2004- Membre des Conseils d'administration de la Fondation Roi Baudouin, de la *Belgian American Educational Foundation*, de l'Institut von Kharman
- 2006- Président du conseil d'administration de l'IRSA (Institut royal pour sourds et aveugles)
- 2006- Président du conseil d'administration de l'AST, Agence de Stimulation Technologique

Titres et distinctions

- 1961-1963 *CRB fellow, Belgian American Educational Foundation*
- 1964 Prix de la Mécanique Appliquée, Société Royale Belge des Ingénieurs et des Industriels
- 1979-1980 Titulaire de la Chaire Francqui, Université de Liège, Belgique
- 1990 Grand Prix de l'Innovation Technologique en Wallonie
- 1991-1992 Titulaire de la Chaire Francqui, KULeuven
- 1993 Second lauréat du Prix Industriel, Société Royale Belge des Ingénieurs et des Industriels
- 1995 *Gold Medal, British Society of Rheology*
- 1997 Docteur *honoris causa*, Rensselaer Polytechnic Institute, NY, USA
- 1998 Chevalier de la Légion d'Honneur
- 2002 *Grande Ufficiale, Ordine della Stella della Solidarieta' Italiana*
- 2002 Docteur *honoris causa*, University of Wales
- 2003 Docteur *honoris causa*, Université de Montréal (Ecole polytechnique)
- 2004 *Chief Executive Leadership Award, CASE (Council for the Advancement and Support of Education)*
- 2004 *Chancellor's Distinguished Honor Award, University of California, Berkeley*
- 2004 Titre de Baron décerné par le Roi Albert II

Production scientifique

- Domaine : Mécanique des milieux continus, Rhéologie, Ecoulements viscoélastiques, Croissance des cristaux, Simulation numérique en rhéologie
- 1966-98 Auteur ou coauteur d'un livre et de 140 publications scientifiques
- 1968-96 Promoteur de 32 doctorats (29 à l'UCL, 3 aux USA)
- 1982-95 Une trentaine de conférences principales lors de congrès internationaux

Transfert technologique

- 1982 Création et première installation du logiciel de calcul Polyflow
(modélisation d'écoulements dans les processus de fabrication)
- 1988 Créateur de la société Polyflow s.a. et administrateur-délégué (88-96)

Promotion de thèses de doctorat

- R. HENRY Application aux matériaux composites de la viscoélasticité avec couples de contraintes (1 juin 1972)
- R. GOFFIN On a finite non-isothermal theory of elasticity (8 juin 1972)
- G. TACKELS Stabilité de l'écoulement d'un fluide viscoélastique de type intégral (12 décembre 1972)
- M. DEVILLE Intégration numérique des équations de Navier-Stokes et simulation de l'étirage d'une fluide visqueux (19 mars 1974)
- L. GERAETS Une théorie des matériaux élastiques-inélastiques appliquée au fluage des métaux (21 septembre 1974)
- G. PILATE Détermination numérique de l'écoulement d'un fluide viscoélastique (26 avril 1977)
- J. DUPONCHEEL Grandes déformations et stabilité des plaques de Cosserat (25 mars 1980)
- A. DENAYER Résolution numérique de problèmes transitoires en thermoviscoélasticité; application au verre (31 mars 1980)
- F. DUPRET Méthode variationnelle pour le calcul par éléments finis d'écoulements à surface libre (23 octobre 1981)
- M. BEZY Simulation numérique de l'écoulement des fluides polymériques dans les convergents (28 juin 1982)
- R. KEUNINGS Simulation numérique d'écoulements à surfaces libres de fluides viscoélastiques (28 juin 1982)
- J.J. VAN SCHAFTINGEN Méthodes d'éléments finis pour les écoulements viscoélastiques (26 juin 1985)
- P. WOUTERS Simulation numérique des échanges thermiques et application à la croissance des cristaux semi-conducteurs (5 septembre 1985)
- J.M. MARCHAL Méthodes d'éléments finis pour le calcul des écoulements de fluides viscoélastiques différentiels (26 juin 1987)
- S. DUPONT Méthodes d'éléments finis pour le calcul des écoulements de fluides viscoélastiques de type intégral (5 octobre 1987)
- B. DEBBAUT Simulation numérique des écoulements viscoélastiques (7 décembre 1988)
- J. DHEUR Simulation numérique des écoulements stratifiés (7 décembre 1988)
- Y. RYCKMANS Simulation numérique de la croissance des cristaux semi-conducteurs (1 décembre 1989)
- V. DELVAUX Surface libre et changements de type dans les écoulements de fluides viscoélastiques (12 décembre 1989)
- O. WAMBERSIE Simulation numérique de l'extrusion tridimensionnelle par une méthode pseudo-transitoire basée sur les gradients conjugués (14 décembre 1990)
- P. NICODEME Simulation numérique des échanges thermiques dans un four et calcul des taux de dislocation dans un cristal d'arséniure de gallium (20 décembre 1990)
- K. KABANEMI Simulation numérique par éléments finis du retrait et du compactage en moulage par injection (29 octobre 1991)

- A. GOUBLomme Méthodes d'éléments finis pour la simulation numérique d'écoulements de fluides viscoélastiques de type intégral (8 septembre 1992)
- V. LEGAT Méthodes d'éléments finis pour le calcul d'écoulements tridimensionnels à surfaces libres (8 septembre 1992)
- A.P. GONZE Méthode directe de résolution d'écoulements turbulents discrétisés par les éléments finis (4 février 1994)
- Th. AVALOSSE Simulation numérique du mélange laminaire par éléments finis (16 mars 1994)
- Ch. BODART Ecoulements viscoelastiques transitoires et sédimentation (7 décembre 1994)
- Fr. DEBAE Ecoulements tridimensionnels de fluides viscoélastiques (28 juin 1995)
- B. PURNODE Vortices and change of type in contraction flows of viscoelastic fluids (16 February 1996)

Conférences invitées (keynote lectures)

- "First International Conference on Numerical Methods in Forming Processes", Swansea, Wales, 1982
- "Third Workshop on Numerical Methods in Flow Problems", Lake Morey, Vermont 1983
- "IXth International Congress of Rheology", Acapulco, Mexico 1984
- "Vth International Symposium on Continuum Models of Discrete Systems", Nottingham, U.K., 1985
- "International Conference on Viscoelasticity of Polymeric Liquids", Grenoble, France, 1986
- "9th International Symposium on Chemical Reaction Engineering", Philadelphia, Pennsylvania, 1986
- "Second International Conference on Numerical Methods in Industrial Forming Processes", Gothenburg, Sweden, 1986
- "Numeta 87. International Conference Series on Advances in Numerical Methods in Engineering : theory and applications", Swansea, Wales, 1987
- "5th Workshop on Numerical Methods in non-Newtonian Flow", Lake Arrowhead, California, 1987
- "8th International Conference on Computing Methods in Applied Science and Engineering", Versailles, France, 1987
- "International Conference on Extensional Flow", Chamonix, France, 1988
- "Polymodel 11. Flow Modelling in Industrial Processes", Cleveland, U.K., 1988
- "Xth International Congress of Rheology", Sydney, Australia, 1988
- "Third International Conference on Numerical Methods in Industrial Forming Processes", Fort Collins, Colorado, 1989
- "First NATO Workshop on Computer Modelling in Crystal Growth from the Melt", Parma, Italy, 1989
- "First Inter-American Conference on Rheology", Montreal, Canada, 1989
- "6th Annual Meeting of the Polymer Processing Society", Nice, France, 1990
- "Second World-Congress on Computational Mechanics", Stuttgart, FRG, 1990
- "Opening of the Welsh Institute of non-Newtonian Fluid Mechanics", 1991
- "Fourth International Conference on Numerical Methods in Industrial Forming Processes", Cemef, Antipolis, 1992
- "3rd AIM Conference on Advanced Topics in Polymer Science", Gargagno, Italy, 1992
- "Advanced Modeling in the Chemical Industry", Exxon ESP program, Leuven, Belgium, 1992

- "Mathematics of finite elements and applications (MAFELAP)", Brunel University, London, 1993
 "International Conference on finite elements in fluids", Barcelona, Spain, 1993
 "Fifth International Conference on Numerical Methods in Industrial Forming Processes", Cornell University, 1995
 "9th Workshop on Numerical Methods in non-Newtonian Flow", Wales, 1995
 "International Congress of Theoretical and Applied Mechanics", Kyoto, 1996

Organisation et présidence de conférences internationales

- 1978** IUTAM Symposium on Non-Newtonian Fluid Mechanics, Louvain-la-Neuve, Belgium (100 participants)
1985 4th International Workshop on Numerical Methods in Non-Newtonian Flow, Spa, Belgium (60 participants)
1992 XIth International Copngress on Rheolgy, Brussels (600 participants); co-chaired with Prof. J. Mewis.

Publications

Livre

CROCHET M.J., DAVIES A.R., WALTERS K., "Numerical Simulation of Non-Newtonian Flow", Elsevier, 1984, 352 pp.

Chapitres de livre

- (1) CROCHET, M.J., "A non-isothermal theory of viscoelastic materials", in "Advances in Theoretical Rheology", Applied Science, Chapter 8, 111-122, 1975.
- (2) CROCHET, M.J., "The flow of a Maxwell fluid around a sphere", in "Finite elements in Fluids IV", John Wiley, 573-597, 1982.
- (3) CROCHET, M.J., WALTERS, K., "Computational techniques for viscoelastic fluid flow", in "Computers and Polymer Processing", Ed. J.R.A. Pearson, S.M. Richardson, Applied Science Publishers, Chapter 2, 21-62, 1983.
- (4) CROCHET, M.J., KEUNINGS, R., "Numerical simulation of viscoelastic flow in some polymer processing applications", in "Numerical analysis of forming processes", John Wiley, Chapter 8, 239-267, 1984.
- (5) CROCHET, M.J., GEYLING, F.T., VAN SCHAFTINGEN, J.J., "Finite element method for calculating the horizontal Bridgman growth of semi-conductor crystals", in "Finite Elements in Fluids, VI", Chapter 17, 321-337, J. Wiley, 1985.
- (6) CROCHET, M.J., MARCHAL, J.M. "Recent developments in viscoelastic flow calculations", in "Interdisciplinary Issues in Material Processing and Manufacturing", vol 1, ASME, 349-358, 1988.
- (7) CROCHET, M.J. MARCHAL, J.M., "Recent results on viscoelastic flow calculation", in "Flow modelling in industrial processes", Ch. 6, Ellis Horwood, 75-87, 1989.
- (8) CROCHET, M.J., DELVAUX, V., "Numerical simulation of inertial viscoelastic flow with change of type", in "Non-linear Evolution Equations that change Type", ed. Keyfitz, B.L., Shearer, M., Springer Verlag, 47-66, 1990.
- (9) CROCHET, M.J., DEBBAUT, B., KEUNINGS, R., MARCHAL, J.M., "Polyflow", in "Computer aided design for polymer processing: application to extrusion and other continuous processes", ed. K. O'Brien. Hanser Verlag, 25-50 1992.

- (10) M.J. CROCHET, F.DUPRET, V. VERLEYE, "Injection molding", in Flow phenomena in Polymeric Composites, S. Advani, editor, Elsevier, 415-463, 1994
- (11) CROCHET, M.J., "Numerical simulation of viscoelastic flow", Lecture Series 1994-03 on "Non-Newtonian Fluid Mechanics", Von Karman Institute, Belgium, 68 pp., 1994.

Articles dans des journaux scientifiques

- (1) CROCHET, M.J., "Symmetric deformations of viscoelastic-plastic cylinders", J. of Applied Mech., **88**, 327-334, 1966.
- (2) CROCHET, M.J., NAGHDI, P.M., "On constitutive equations for flow of fluid through an elastic solid", Int. J. of Eng. Sci., **4**, 383-401, 1966.
- (3) CROCHET, M.J., "Compatibility equations for a Cosserat surface", Journal de Mécanique, **6**, 593-600, 1967.
- (4) CROCHET, M.J., NAGHDI, P.M., "Small motions superposed on large static deformations in porous media", Acta Mechanica, **4**, 315-335, 1968.
- (5) CROCHET, M.J., NAGHDI, P.M., "Large deformation solutions for an elastic Cosserat surface", Int. J. of Eng. Sci., **7**, 309-335, 1969.
- (6) CROCHET, M.J., NAGHDI, P.M., "A class of simple solids with fading memory", Int. J. of Eng. Sci., **7**, 1173-1198, 1969.
- (8) CROCHET, M.J., "Some special flows in porous media", Journal de Mecanique, **8**, 425-441, 1969.
- (9) CROCHET, M.J., "A mixture of two simple materials", Acta Mechanica, **12**, 189-208, 1971.
- (10) CROCHET, M.J., "Finite deformations of inextensible Cosserat surfaces", Int. J. of Solids and Structures, **7**, 383-397, 1971.
- (11) CROCHET, M.J., NAGHDI, P.M., "A class of non-isothermal viscoelastic fluids", Int. J. Engng. Sci., **10**, 775-800, 1972.
- (12) CROCHET, M.J., TACKELS, G., "Étude des tensions thermiques au cours du recuit d'une feuille de verre", Silicates Industriels, **37**, 101-106, 1972.
- (13) CROCHET, M.J., NAGHDI, P.M., "On thermal effects in a special class of viscoelastic fluids", Rheologica Acta, **12**, 321-329, 1973.
- (14) TACKELS, G., CROCHET, M.J., "Thermal stresses during annealing of a glass ribbon", Rheologica Acta, **12**, 330-336, 1973.
- (15) TACKELS, G., CROCHET, M.J., "Stability of a plane Poiseuille flow of a finite linear viscoelastic fluid", Phys. of Fluids, **16**, 790-795, 1973.
- (16) CROCHET, M.J., NAGHDI, P.M., "On a restricted non-isothermal theory of simple materials", Journal de Mecanique, **13**, 97-114, 1974.
- (17) CROCHET, M.J., DE BAST, J., GILARD, P., TACKELS, G., "Experimental study of stress relaxation during annealing", J. of Non-Crystalline Solids, **14**, 242-254, 1974.
- (18) CROCHET, M.J., PILATE, G., "Numerical study of the flow of a fluid of second grade in a square cavity", Computers and Fluids, **3**, 283-291, 1975.
- (19) CROCHET, M.J., "A note on the stability of Poiseuille and Couette flows of viscoelastic fluids", Mechanics Research Communications, **2**, 13-18, 1975.
- (20) CROCHET, M.J., TACKELS, G., "On the stability of plane Poiseuille flow of viscoelastic fluids", Acta Mechanica, **24**, 1-12, 1976.
- (21) CROCHET, M.J., PILATE, G., "Plane flow of a fluid of second grade through a contraction", J. of non-Newtonian fluid mechanics, **1**, 247-258, 1976.
- (22) PILATE, G., CROCHET, M.J., "Plane flow of a second order fluid past submerged boundaries", J. of non-Newtonian fluid mechanics, **2**, 323-341, 1977.

- (23) CROCHET, M.J., NAGHDI, P.M., "On thermomechanics of polymers in the transition and rubber regions", *Journal of Rheology*, **22**, 73-89, 1978.
- (24) CAMPION-RENSON, A, CROCHET, M.J., "On the stream function-vorticity finite element solutions of Navier-Stokes equations", *Int. Journ. for Numerical Methods in Engineering*, **12**, 1809-1818, 1978.
- (25) CROCHET, M.J., BEZY, M., "Numerical solution for the flow of viscoelastic fluids", *J. of Non-Newtonian Fluid Mechanics*, **5**, 201-218, 1979.
- (26) DENAYER, A., CROCHET, M.J., "Transient thermoviscoelastic stresses in glass", *J. of Applied Mechanics*, **102**, 254-260, 1980.
- (27) CROCHET, M.J., KEUNINGS, R., "Die Swell of a Maxwell Fluid", *J. of non-Newtonian Fluid Mechanics*, **7**, 199-212, 1980.
- (28) CROCHET, M.J., KEUNINGS, R., "On numerical die swell calculation", *J. of non-Newtonian Fluid Mechanics*, **10**, 85-94, 1982.
- (29) LEE, S.J., DENN, M.M., CROCHET, M.J., METZNER, A.B., "Compressive flow between parallel disks with a transverse viscosity gradient", *J. of non-Newtonian Fluid Mechanics*, **10**, 3-30, 1982.
- (30) COYLE, Ed., CROCHET, M.J., PIPES, R.B., "Analysis of cylindrical joints of composite materials for torsional loadings", *J. of Reinforced Plastics and Composites*, **1**, 195-205, 1982.
- (31) CROCHET, M.J., KEUNINGS, R., "Finite element analysis of die swell of a highly elastic fluid", *J. of non-Newtonian Fluid Mechanics*, **10**, 339-356, 1982.
- (32) CROCHET, M.J., WALTERS, K., "Numerical methods in non-Newtonian fluid mechanics", in "Annual Reviews of Fluid Mechanics", Ed. J. Wehausen, 241-260, 1983.
- (33) KEUNINGS, R., CROCHET, M.J., DENN, M., "Profile development in continuous drawing of viscoelastic liquids", *Industrial and Engineering Chemistry Fund.*, **22**, 347-355, 1983.
- (34) CROCHET, M.J., GEYLING, F.T., VAN SCHAFTINGEN, J.J., "Numerical simulation of the horizontal Bridgman growth of Gallium Arsenide Crystal", *J. of Crystal Growth*, **65**, 166-172, 1983.
- (35) CROCHET, M.J., WOUTERS, P.Y., GEYLING, F.T., JORDAN, A.S., "Finite element simulation of Czochralski bulk flow", *J. of Crystal Growth*, **65**, 153-165, 1983.
- (36) GIVLER, R.C., CROCHET, M.J., PIPES, R.B., "Numerical prediction of fiber orientation in dilute suspensions", *J. of Composite Materials*, **17**, 330-343, 1983.
- (37) CROCHET, M.J., "La simulation numerique des ecoulements de fluides visqueux", *Journal des Ingenieurs*, **32**, 5-16, 1983.
- (38) LEE, S.J., DENN, M.M., CROCHET, M.J., METZNER, A.B., RIGGINS, G.J., "Compressive flow between parallel disks : II. Oscillatory behavior of viscoelastic materials under a constant load", *J. of non-Newtonian Fluid Mechanics*, **14**, 301-325, 1984.
- (39) KEUNINGS, R., CROCHET, M.J., "Numerical simulation of the flow of a viscoelastic fluid through an abrupt contraction", *J. of non-Newtonian Fluid Mechanics*, **14**, 279-299, 1984.
- (40) VAN SCHAFTINGEN, J.J., CROCHET, M.J., "A comparison of mixed methods for solving the flow of a Maxwell fluid", *Int. J. of Numerical Methods in Fluids*, **4**, 1065-1081, 1984.
- (42) DUPONT, S., MARCHAL, J.M., CROCHET, M.J., "Finite element simulation of viscoelastic fluids of the integral type", *J. non-Newtonian Fluid Mechanics*, **17**, 157-183, 1985.
- (43) BEHRENS, R.A., CROCHET, M.J., DENSON, C.D., METZNER, A.B., "Transient domain free surface flows : motion of a fluid advancing in an empty tube", *A I Ch E Journal*, **33**, 1178-1186, 1987.

- (44) DUPRET, F., MARCHAL, J.M., CROCHET, M.J., "On the consequence of discretization errors in the numerical calculation of viscoelastic flow", *J. of non-Newtonian Fluid Mechanics*, **18**, 173-186, 1985.
- (45) VAN SCHAFTINGEN, J.J., CROCHET, M.J., "Analytical and numerical solution of the Poiseuille flow of a Johnson-Segalman fluid", *J. of non-Newtonian Fluid Mechanics*, **18**, 335-351, 1985.
- (46) CROCHET, M.J., DUPONT, S., MARCHAL, J.M., "Numerical calculation of the Newtonian liquid circular hole pressure", *Journal of Rheology*, **30S**, 41-96, 1986.
- (47) CROCHET, M.J. GEYLING, F.T., VAN SCHAFTINGEN, J.J. "Numerical simulation of the horizontal Bridgman growth. Part I : two-dimensional flow", *Int. J. of Numerical Methods in Fluids*, **7**, 29-47, 1987.
- (48) CROCHET, M.J., DUPONT, S., GEYLING, F.T., MARCHAL, J.M., "Numerical simulation of the horizontal Bridgman growth Part II : three-dimensional steady flow", *Int. J. of Numerical Methods in Fluids*, **7**, 49-67, 1987.
- (49) WOUTERS, P., VAN SCHAFTINGEN, J.J., CROCHET, M.J., GEYLING, F.T., "Numerical simulation of the horizontal Bridgman growth. Part III : calculation of the interface", *Int. J. of Numerical Methods in Fluids*, **7**, 131-153, 1987.
- (50) MARCHAL, J.M., CROCHET, M.J., "Hermitian finite elements for calculating viscoelastic flow", *J. of non-Newtonian Fluid Mechanics*, **20**, 187-207, 1986.
- (51) DEBBAUT, B., CROCHET, M.J., "Further results on the flow of a viscoelastic fluid through an abrupt contraction", *J. of non-Newtonian Fluid Mechanics*, **20**, 173-185, 1986.
- (52) CROCHET, M.J., "Foreword to the Proceedings of the Fourth Workshop on Numerical Methods in Viscoelastic Flow", *J. of non-Newtonian Fluid Mechanics*, **20**, 1-9, 1986.
- (53) BINDING, D.M., WALTERS, K., CROCHET, M.J., DHEUR, J. "Interfacial effects in the flow of viscous and elasto-viscous liquids", *R. Soc. Lond.*, **A 323**, 449-469, 1987.
- (54) DUPRET, F., RYCKMANS, Y., WOUTERS, P., CROCHET, M.J. "Numerical calculation of the global heat transfer in a Czochralski furnace", *J. of Crystal Growth*, **79**, 84-91, 1986.
- (55) CROCHET, M.J. "Numerical simulation of flow processes", *Chemical Engineering Science*, **42**, 979-1003.
- (56) DUPONT, S., CROCHET, M.J. "Swirling flows of viscoelastic fluids of the integral type in rheogoniometers", *Chemical Engineering Communications*, **53**, 199-221, 1987.
- (57) DHEUR, J., CROCHET, M.J. "Newtonian stratified flow through an abrupt expansion", *Rheologica Acta*, **26**, 401-413, 1987.
- (58) MARCHAL, J.M., CROCHET, M.J. "A new mixed finite element for calculating viscoelastic flow", *J. of non-Newtonian Fluid Mechanics*, **26**, 77-114, 1987.
- (59) DUPONT, S., CROCHET, M.J. "The vortex growth of a KBKZ Fluid in an abrupt contraction", *J. of non-Newtonian Fluid Mechanics*, **29**, 81-91, 1988.
- (60) BEHRENS, R.A., CROCHET, M.J., DENSON, C.D., METZNER, A.B. "Transient free-surface flows : motion of a fluid advancing through a bed of fibers or cylinders", *A I Ch E Journal*, **34**, 1894-1902, 1988.
- (61) DEBBAUT, B., MARCHAL, J.M., CROCHET, M.J. "Numerical simulation of highly viscoelastic flow through an abrupt contraction", *J. of non-Newtonian Fluid Mechanics*, **29**, , 1988.
- (62) DEBBAUT, B., CROCHET, M.J. "Extensional effects in complex flow" *J. of non-Newtonian Fluid Mechanics*, **30**, 169-184, 1988.
- (63) DHEUR, J., CROCHET, M.J. "Stratified flows of Newtonian and viscoelastic fluids", *J. of non-Newtonian Fluid Mechanics*, **32**, 1-18, 1989.
- (64) CROCHET, M.J. "Numerical simulation of viscoelastic flow: a review", *Rubber Chemistry and Technology*, **62**, 426-455, 1989.

- (65) DUPRET, F., NICODEME, P., RYCKMANS, Y., WOUTERS, P., CROCHET, M.J. "Global modelling of heat transfer in crystal growth furnaces", , Int. J. of Heat and Mass Transfer, **33**, 1849-1871, 1990.
- (66) CROCHET, M.J., DUPRET, F., RYCKMANS, Y., GEYLING, F.T., MONBERG, E. "Numerical simulation of crystal growth in a vertical Bridgman furnace", J. Crystal Growth, **97**, 173-185, 1989.
- (67) CROCHET, M.J., DELVAUX, V., MARCHAL, J.M. "On the convergence of the streamline-upwind mixed finite element", J. of non-Newtonian Fluid Mechanics, **34**, 261-268, 1990.
- (68) DELVAUX, V. , CROCHET, M.J., "Numerical simulation of delayed die-swell", Rheologica Acta, **29**,1-10,1990.
- (69) DELVAUX, V. , CROCHET, M.J., "Numerical prediction of anomalous transport phenomena in viscoelastic flow", J. of non-Newtonian Fluid Mechanics, **37**, 297-315, 1990.
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