



**Production scientifique
2012-2015
Laboratoire de mathématiques et applications**

*** Projets internationaux financés**

ID	Intitulé	Responsable	Année
179	CONVENTION DE COLLABORATION DE RECHERCHE établie entre les partenaires impliqués dans la réalisation d'un projet de recherche financé dans le cadre DES DOMAINES PRIORITAIRES DE LA RECHERCHE SCIENTIFIQUE ET DU DEVELOPPEMENT TECHNOLOGIQUE	A. Taik	2015
180	Programme Euroméditerranée	Driss Ouzar	2014
181	programme PHC MAGHREB	O. Khadir	2014

***Publications indexées**

ID	Intitulé	Année	Journal	Auteurs
37	Influence of quasi-periodic gravitational modulation on convective instability of reaction fronts in porous media	2012	Commun Nonlinear Sci Numer Simulat	Karam Allali, Mohamed Belhaq, Kamal El Karouni
38	Direct Numerical Simulations of Reaction Fronts Propagation under Quasi-Periodic Gravitational Modulation	2012	International Journal of Computer Applications	Karam Allali, Kamal El Karouni
39	EXISTENCE AND UNIQUENESS OF SOLUTIONS FOR MISCIBLE LIQUIDS MODEL IN POROUS MEDIA	2013	Electronic Journal of Differential Equations	Karam Allali
40	Effect of Amplitude Modulation of Gravitational Vibration on Convective Instability of Reaction Fronts in Porous Media	2013	Applied Mathematical Sciences	Karam Allali, Mohamed Belhaq
41	A Space-Time Finite Element Approximation of a Two-Step Chemical Kinetics Model	2013	Universal Journal of Computational Mathematics	Abdellatif Agouzal, Karam Allali
42	On the Stream Function-Vorticity Finite Element Formulation for Incompressible Flow in Porous Media	2014	Advances in Numerical Analysis	Abdellatif Agouzal, Karam Allali, and Siham Binna
43	On convective instability of reaction fronts in porous media using the Darcy-Brinkman formulation	2014	Int. J. Adv. Appl. Math. and Mech.	Karam Allali, Oussama Khalfi
44	On the Quasi-periodic Gravitational Modulation of Polymerization Front	2014	MATEC Web of Conferences	Karam Allali, Saadia Assiyad, and Mohamed Belhaq

ID	Intitulé	Année	Journal	Auteurs
	with Solid Product			
45	Convection of Polymerization Front with Solid Product under Quasi-Periodic Gravitational Modulation	2014	Nonlinear Dynamics and Systems Theory	Karam Allali, Saadia Assiyad and Mohamed Belhaq
47	Global Analysis of a HCV Model with CTL, Antibody Responses and Therapy	2015	Applied Mathematical Sciences	Adil Meskaf, Y Tabit and K Allali
48	Numerical Simulations of Heat Explosion with Convection in Porous Media	2015	Combustion Science and Technology	Karam Allali, Fouad Bikany, Ahmed Taik & Vitaly Volpert
49	A MODEL OF MISCIBLE LIQUIDS IN POROUS MEDIA	2015	Electronic Journal of Differential Equations	KARAM ALLALI, VITALY VOLPERT, VITALI VOUGALTER
50	Mixed Finite Element Approximation of Reaction Front Propagation in Porous Media	2015	Int. J. Eng. Math. Model.	Karam Allali, Siham Binna
52	Influence of Quasiperiodic Gravitational Modulation on Convective Instability of Liquid-Liquid Polymerization Front	2015	Mathematical Problems in Engineering	Saadia Assiyad, Karam Allali, and Mohamed Belhaq
53	A Fully Discretized Finite Element Approximation for an Incompressible Flow in Porous Media	2015	Universal Journal of Computational Mathematics	Abdellatif Agouzal, Karam Allali, Siham Binna
2380	Study of different strategies for splitting variables in multidisciplinary topology optimization	2014	Applied Mathematical Sciences	R. Aboulaich, A. Habbal, N. Moussaid

ID	Intitulé	Année	Journal	Auteurs
2381	Image retrieval using global descriptors and multiple clustering in Nash game	2015	Annals of the University of Craiova, Mathematics and Computer Science Series	Bencharef, O., Jarmouni, B., Moussaid, N., Souissi, A.
2382	A new approach for similar images using game theory	2014	Applied Mathematical Sciences	Bencharef, O., Jarmouni, B., Moussaid, N., Souissi, A.
2383	Data set for Tinagh handwriting character recognition	2015	(Elsevier) Data in Brief	O. Bencharef, Y. Chihab, N. Mousaid, M. Oujoura
2823	Complete global stability for an SIRS epidemic model with generalized non-linear incidence and vaccination.	2012	Applied Mathematics and Computation	Lahrouz, A., Omari, L., Kiouach, D., & Belmaâti, A.
2824	Comparison of deterministic and stochastic SIRS epidemic model with saturating incidence and immigration.	2015	Arabian Journal of Mathematics	Lahrouz, A., Omari, L., Settati, A., & Belmaâti, A.
2825	Doubly Non-linear Elliptic-parabolic Equations by Rothe's Method	2014	British Journal of Mathematics & Computer Science	Igbida, J., El Hachimi, A., Jamea, A., & Asmaa, A.
6327	A combined radial basis method for mechanical aeration in an eutrophicated lake	2015	The International Journal of Multi-disciplinary Sciences - ISSN: 2421-9606	A. Halassi , D. Ouazar, A.Taik
6330	RBF methods for solving laterally averaged Saint Venant equations: application to eutrophication prevention through aeration	2015	International Journal of Computational Fluid Dynamics	A. Halassi, D. Ouazar and A. Taik
6334	A meshless method for numerical simulation of depth-averaged	2014	INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN FLUIDS	Yasser Alhuri, Fayssal Benkhaldoun, Driss Ouazar, Mohammed Seaid and

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	turbulence flows using a k-q model			Ahmed Taik
6338	Numerical simulation of Saint-Venant equations with turbulence using radial basis functions: application to Lake Bouregreg	2012	Int. J. Computer Applications in Technology	Yasser Alhuri, A Naji, Driss Ouazar, and Ahmed Taik
9529	On the transfer of the notion directed union of Artinian subrings	2015	Beitr Algebra Geom	D. Karim
9535	Direct limits of finite products of fields	2013	Palestine Journal of Mathematics	D. Karim
15140	Influence of Gravitational Modulation on Natural Convection in a Horizontal Porous Annulus. Journal of Heat Transfer	2016	Journal of Heat Transfer	Belabid, J., & Allali, K.
15141	Heat Explosion In Porous Media Using Radial Basis Functions	2016	MATEC Web of Conferences. EDP Sciences	Allali, K., Joundy, Y., Taik, A., & Volpert, V.
15142	Liquid-Liquid Polymerization Front under Quasiperiodic Gravitational Modulation	2016	MATEC Web of Conferences. EDP Sciences	Assiyad, S., Allali, K., & Belhaq, M
15143	Mathematical analysis of HIV model with two saturated rates, CTL and antibody responses.	2016	World Journal of Modelling and Simulation	Tabit, Y., Meskaf, A., & Allali, K.
15144	Optimal control of a delayed hepatitis B viral infection model with cytotoxic T-lymphocyte and antibody responses.	2016	International Journal of Dynamics and Control	Meskaf, A., Allali, K., & Tabit, Y.

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15146	Some generalised Fixed point theorems in a partially ordered space endowed with two metrics	2016	Advances in Fixed Point Theory	Chaira, K., Eladraoui, A., & Kabil, M.
15148	A meshless method for numerical simulation of depth-averaged turbulence flows using ak-ε model.	2016	International Journal for Numerical Methods in Fluids	Alhuri, Y., Benkhaldoun, F., Ouazar, D., Seaid, M., & Taik, A.
15149	. Slope limiters for radial basis functions applied to conservation laws with discontinuous flux function.	2016	Engineering Analysis with Boundary Elements	Benkhaldoun, F., Halassi, A., Ouazar, D., Seaid, M., & Taik, A.
15151	On the set of artinian subrings of infinite products of rings	2016	Springer Proceedings in Mathematics and Statistics	Karim, D., Zarzuela, S.
15152	On direct limits of finite products of fields as subrings of a commutative ring	2016	Algebra Colloquium	Karim, D.
15153	Products of zero-dimensional pairs	2016	Beitrage zur Algebra und Geometrie	Karim, D.
19536	Global Analysis for an HIV Infection Model with CTL Immune Response and Infected Cells in Eclipse Phase	2017	Appl. Sci. 2017, 7, 861; doi:10.3390/app7080861	Karam Allali , Jaouad Danane and Yang Kuang
19537	Influence of Natural Convection on the Heat Explosion in Porous Media	2017	Combustion, Explosion, and Shock Waves, 2017, Vol. 53, No. 2, pp. 134-139.	K. Allali, Y. Joundy, A. Taik, and V. Volpert
19538	Existence and uniqueness of solutions to a model describing miscible liquids	2017	C.R. Acad. Sci. Paris, Ser.I	Karam Allali
19539	Optimal control of a delayed hepatitis	2017	Int. J. Dynam. Control (2017)	Adil Meskaf · Karam Allali · Youssef

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	B viral infection model with cytotoxic T-lymphocyte and antibody responses		5:893-902	Tabit
19540	Influence of Gravitational Modulation on Natural Convection in a Horizontal Porous Annulus	2017	Journal of Heat Transfer	Jabrane Belabid, Karam Allali
19541	On HIV Model with Adaptive Immune Response, Two Saturated Rates and Therapy	2017	Math. Model. Nat. Phenom. Vol. 12, No. 5, 2017, pp. 1{14	K. Allali, Y. Tabit, S. Harroudi
19990	A stabilized meshless method for time-dependent convection-dominated flow problems	2017	Mathematics and Computers in Simulation Volume 137, July 2017, Pages 159-176	Fayssal Benkhaldoun, A.Halassi, Driss Ouazar, Mohammed Seaid, Ahmed Taik
19991	The Mean-CVaR Model for Portfolio Optimization Using a Multi-Objective Approach and the Kalai-Smorodinsky Solution	2017	MATEC	Aboulaich, Rajae, Rachid Ellaia, Samira Elmoumen, Abderahmane Habbal, and Nouredine Moussaid
22396	An extension of Fisher fixed point theorem in partially ordered generalized metric spaces	2017	Malaya Journal of Matematik, Vol.5, No.4, 647-652, 2017. https://doi.org/10.26637/MJM0504/0006 .	K.Chaira, A. Eladraoui et M.Kabil
26040	Suppression of Chaos in Porous Media Convection under Multifrequency Gravitational Modulation	2018	Advances in Mathematical Physics	Karam Allali
26042	Numerical analysis of in-situ biodegradation model in porous media	2018	Journal of Computational and Applied Mathematics	Agouzal, Allali, Binna
26043	Prediction of DNA methylation in the	2018	Gene	Imane Saifa, Yassine Kasmia, Karam

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	promoter of gene suppressor tumor			Allalib, Moulay Mustapha Ennaja,*
26044	Mathematical Analysis and Treatment for a Delayed Hepatitis B Viral Infection Model with the Adaptive Immune Response and DNA-Containing Capsids	2018	High-Throughput 2018, 7, 35; doi:10.3390/ht7040035	Danane, Allali
26045	Three Metaheuristics for Solving the Flow Shop Problem with Permutation and Sequence Dependent Setup Time	2018	IEEE Conference	Aqil and Allali
26046	Mathematical Modeling of the Adaptive Immune Responses in the Early Stage of the HBV Infection	2018	International Journal of Differential Equations	Karam Allali ,1 Adil Meskaf,1 and Abdessamad Tridane 2
26047	Natural Convection in a Horizontal Porous Annulus under Quasi-periodic Gravitational Modulation	2018	MATEC Web of Conferences 241, 01005 (2018) https://doi.org/10.1051/mateconf/201824101005	Jabrane Belabid1;a, Karam Allali1;b, and Mohamed Belhaq2;c
26048	Global stability analysis of a delayed HIV model with saturated infection rate	2018	MATEC Web of Conferences (2018)	jaouad Danane a and Karam Allali b
26049	The dynamics of HIV infection model with logistic growth and infected cells in eclipse phase	2018	MATEC Web of Conferences (2018)	Sanaa Harroudi;a and Karam Allali;b
26050	Analysis and Optimal Control of an Intracellular Delayed HIV Model with CTL Immune Response	2018	Mathematics in Computer Science	Karam Allali · Sanaa Harroudi · Delfim F. M. Torres
26051	Effect of hypermethylation in ovarian cancer: Computational approach	2018	Meta Gene	Imane Saifa, Najwa Hassoua, Karam Allalib, Moulay Mustapha Ennaji

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26052	Optimal control of a delayed hepatitis B viral infection model with HBV DNA-containing capsids and CTL immune response	2018	Optim Control Appl Meth. 2018	Jaouad Danane Adil Meskaf Karam Allali
26087	ANALYSIS AND OPTIMAL CONTROL OF AN HIV MODEL WITH LOGISTIC GROWTH AND INFECTED CELLS IN ECLIPSE PHASE	2018	Commun. Fac. Sci. Univ. Ank. Ser. A1 Math. Stat.	SANAA HARROUDI, JAOUAD DANANE, AND KARAM ALLALI
26095	A MESHFREE METHOD FOR HEAT EXPLOSION PROBLEMS WITH NATURAL CONVECTION IN INCLINED POROUS MEDIA	2018	MATEC Web of Conferences	Abdoulhafar Halassi ¹ , Youssef Joundy ² , Loubna Salhi ^{3;a} , and Ahmed Taik ²
26097	Extension of Kirk-Saliga Fixed Point Theorem in a Metric Space with a Reflexive Digraph	2018	International Journal of Mathematics and Mathematical Sciences	Karim Chaira, ¹ Abderrahim Eladraoui, ² Mustapha Kabil, ² and Samih Lazaiz ¹
26098	Free monoids and generalized metric spaces	2018	European Journal of Combinatorics	Mustapha Kabil a, Maurice Pouzet b,c, Ivo G. Rosenberg

*Publications avec comité de lecture

ID	Intitulé	Année	Journal	Auteurs
15154	Optimisation multicritère: Une approche par partage des variables.	2016	REVUE AFRICAINE DE LA RECHERCHE EN INFORMATIQUE ET MATHÉMATIQUES APPLIQUÉES	Moussaid, N., Habbal, A., & Aboulaich, R.

*Communications internationales

ID	Intitulé	Auteurs	Conférence	Ville	Pays	Date
8616	Modelling of convective heat explosion in porous media	Karam Allali, Youssef Joundi, Ahmed Taik and Vitaly Volpert	Quatrieme Congres de la SM2A, Oujda-Maroc, 12-14 Fevrier 2015	Oujda-Maroc	Maroc	2015-02-12
8618	Research on similar images based on global descriptors	Bencharef, O., Jarmouni, B., Moussaid, N., Souissi, A.	MOCASIM'14	Marrakech	Maroc	2014-11-19
8624	Research on similar images based on global descriptors	Bencharef, O., Jarmouni, B., Moussaid, N., Souissi, A.	jano'10	Essaouira	Maroc	2013-10-31
8628	The mean CVaR Model	N Moussaid	jano'10	Essaouira	Maroc	2013-10-13
8629	Cylindrical Flame Supported by Two-step Sequential Reactions, Asymptotic Analysis	M. Garbey, A. Taik	Troisieme Congrès de la SM2A, Marrakech-Maroc, 10 { 13 Septembre 2012	Marrakech	Maroc	2013-09-10
8633	Meshfree collocation methods for anisotropic diffusion problems	A. Halassi, H. Guillard, D. Ouazar, A. Taik	Euro-Mediterranean Workshop on Meshless Methods (em3) 23-25 September 2013, Tangier, Morocco	Tanger	Maroc	2013-09-23
8635	Modeling and simulating mechanical aeration for eutrophicated shallow water flow using radial basis functions	A. Halassi, D. Ouazar and A. Taik	MAMERN13: 5th International Conference on Approximation Methods and Numerical Modelling in Environment	Granada (Spain)	Spain	2013-04-22

ID	Intitulé	Auteurs	Conférence	Ville	Pays	Date
			and Natural Resources Granada (Spain), April 22-25, 2013			
8636	Reaction Fronts in Porous Media, Influence of Lewis Number, Linear Stability Analysis	L. Salhi and A. Taik	MAMERN13: 5th International Conference on Approximation Methods and Numerical Modelling in Environment and Natural Resources Granada (Spain), April 22-25, 2013	Granada (Spain)	Spain	2013-04-22
8638	A Global Multiquadric Radial Basis Function (GMQ-RBF) method for nonlinear mixture shallow water flows	A. Halassi, D. Ouazar, A. Taik	Congr�es International du LEM2I, ENIM-Rabat-Maroc, 12-15 F�evrier 2013	Rabat	Maroc	2013-02-12
8639	A stabilized meshless method for time-dependent convection-dominated flow problems	Fayssal Benkhaldoun, Abdoul Halassi, Driss Ouazar, Mohammed Seaid and Ahmed Taik	MAMERN VI-2015: 6th International Conference on Approximation Methods and Numerical Modelling in Environment and Natural Resources Pau (France), June 1-5, 2015	Pau (France)	France	2015-06-01
8642	A combined meshfree method for two-phase fluid : Application to air injection in the	A. Halassi, D. Ouazar, A. Taik	7e colloque sur les Tendances des Applications en Math�ematiques Tunisie	Tanger	Maroc	2015-05-04

ID	Intitulé	Auteurs	Conférence	Ville	Pays	Date
	Bouregreg lake		Algérie Maroc, Tanger 04 - 08 Mai 2015			
9574	Analysis of HIV pathogenesis model with the adaptive immune response and two saturated rates	Y. Tabit, A. Meskaf, K. Allali	Quatrieme Congres de la SM2A, Oujda-Maroc, 12-14 Fevrier 2015	Oujda-Maroc	Maroc	2015-02-12
9590	On the Quasi-periodic Gravitational Modulation of Polymerization Front with Solid Product	Karam Allali, Saadia Assiyad, and Mohamed Belhaq	2nd International Conference on Structural Nonlinear Dynamics and Diagnosis CSNDD 2014	Agadir	Maroc	2014-05-19
9596	Convection in porous media under Darcy-Brinkman approximation	K. Allali & O. Khalfi	7e colloque sur les Tendances des Applications en Mathématiques Tunisie Algérie Maroc, Tanger 04 - 08 Mai 2015	Tanger	Maroc	2015-05-04
9599	Mixed Finite Element Approximation of Combustion Problem in Porous Media	K. Allali and S. Binna	7e colloque sur les Tendances des Applications en Mathématiques Tunisie Algérie Maroc, Tanger 04 - 08 Mai 2015	Tanger	Maroc	2015-05-04
10359	Optimal control of a delayed HCV infection model with CTL and antibody responses using an efficient numerical	Adil Meskaf, K Allali, Y Tabit	7ème Workshop « Modélisation, Analyse Et Contrôle des Systèmes (MACS7)	ElJadida	Maroc	2015-10-29

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	method					
13053	On the set of Artinian subrings of infinite products of rings	D. Karim	Non Associative & Non Commutative Algebra and Operator Theory. Dakar's Workshop in Honor of Prof. Amin Kaidi	Dakar	Senegal	2014-05-23
15170	A stable meshless scheme for incompressible Navier-Stokes flows	Abdoul-hafar Halassi, Driss Ouazar, Ahmed Taik	Journées d'Analyse Numérique et d'Optimisation B'eni-Mellal, Maroc 27 au 29 Avril 2016	B'eni-Mellal	Maroc	2016-04-27
19992	Blind image by Nash game	Moussaid and Meskine	WIMA 2017	MOhammedia	Maroc	2017-11-22
19993	Analyse lineaire de stabilite de front de reaction	Rouah and Taik	WIMA 2017	MOhammedia	Maroc	2017-10-22
19994	Global Analysis for an HIV Infection Model	Karam Allali , Jaouad Danane and Yang Kuang	WIMA 2017	MOhammedia	Maroc	2017-10-22
19995	Global stability of SEIR model	Bentaleb and Amine	WIMA 2017	MOhammedia	Maroc	2017-10-22
19996	Extentions of some fixed point theorems	Chaira and Adraoui and Kabil	WIMA 2017	MOhammedia	Maroc	2017-10-22

*Communications nationales

ID	Intitulé	Auteurs	Conférence	Ville	Date
9562	L'influence des quasi-vibrations sur la polymérisation frontale avec un polymère solide.	Karam Allali, Saadia Assiyad, and Mohamed Belhaq	Journée Analyse, Approximation et Expérimentations	Mohammedia	2015-02-05
9565	Mixed Finite Element Approximation of Reaction Front Propagation in Porous Media.	K. Allali and S. Binna	Journée Analyse, Approximation et Expérimentations	Mohammedia	2015-02-05
9566	Analyse du mod_ele de la pathogen_ese du VIH avec les r_ponses immunitaires du corps humain et deux taux de saturation.	Y. Tabit, A. Meskaf, K. Allali	Journée Analyse, Approximation et Expérimentations	Mohammedia	2015-02-05
9568	Etude de l'instabilité convective du fronts de réaction en milieux poreux en utilisant la formulation de Darcy-Brinkman.	K. Allali & O. Khalfi	Journée Analyse, Approximation et Expérimentations	Mohammedia	2015-02-05
9569	A stabilized meshless method for time-dependent convection-dominated flow problems	A. Halassi, D. Ouazar, A. Taik	Journée Analyse, Approximation et Expérimentations	Mohammedia	2015-02-05
9571	Reaction Fronts in Porous Media, Influence of Lewis number, Linear Stability Analysis	L. Salhi and A. Taik	Journée Analyse, Approximation et Expérimentations	Mohammedia	2015-02-05
10367	Analyse du modèle de la pathogenèse du VIH	Adil Meskaf, Y Tabit and K Allali	Journée doctorale FSTM	Mohammedia	2015-06-16

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15555	OPTIMAL CONTROL OF A DELAYED HBV INFECTION MODEL WITH LOGISTIC HEPATOCYTE GROWTH AND ADAPTIVE IMMUNE RESPONSE	K allali A Meskaf	Fourth International Conference on Complex Dynamical Systems in Life Sciences: Modeling and Analysis (4thICCDs'2016) October 26-28, 2016, Agadir Morocco	Agadir	2016-10-26

*Ouvrages

ID	Intitulé	Auteurs	Editeur	Date
15171	Méthodes sans maillage pour la résolution d'écoulement peu profond	Abdoul-hafar Halassi, Ahmed Taik	Editions Universitaires Européennes	2016

*Chapitres d'ouvrage

ID	Intitulé chapitre	Auteurs	Ouvrage	Editeur	Date
58	Influence of Periodic and Quasi-periodic Gravitational Modulation on Convective Instability of Reaction Fronts in Porous Media	K. Allali and M. Belhaq	Without Bounds: A Scientific Canvas of Nonlinearity and Complex Dynamics, Understanding Complex Systems	Springer-Verlag Berlin Heidelberg	2013

*Thèses soutenues

ID	Nom Prénom	Sujet	Directeur de thèse	Année de première inscription	Date de soutenance
305	Kamal ELKAROUNI	Analyse et simulations numériques de l'influence des phénomènes vibratoires sur l'écoulement d'un fluide dans un milieu poreux	ALLALI KARAM	2009	2013-10-05
3078	Abdoul-hafar Halassi Bacar	Méthodes sans maillage pour la modélisation et la simulation numérique d'écoulements peu profonds	Taik Ahmed	2011	2016-03-18
3885	Y. Joundy	Analyse et simulations numériques des problèmes à paramètres critiques	Taik Ahmed	2012	2017-07-22
3886	L. Salhi	Analyse et simulations numériques des problèmes de réaction-diffusion	Taik Ahmed	2011	2017-10-28
4956	Saadia Assyiad	Etude mathématique et numérique de la polymérisation frontale	ALLALI KARAM	2013	2018-05-12