

CURRICULUM VITÆ

Dr. Lyes AMARA, Ing., M.Sc., D.Sc.

Associate Professor (*Maitre de Conférences "A"*),

Department of Civil Engineering and Hydraulics, Jijel University, Algeria.

Laboratory of Civil Engineering and Environment (LGCE)

Office Address:

University Mohamed Seddik Benyahia of Jijel,
Faculty of Technology, Department of Civil Engineering and Hydraulics
B.P. 98 Ouled Aissa 18000 Jijel, Algeria.
Cellphone #: +213 541 99 66 50
Email: lyes.amara@univ-jijel.dz

GENERAL INFORMATIONS

1. Education and qualifications

- 06/2020 **Habilitation**, Hydraulic Engineering, University of Bejaia.
- 12/2017 **Doctor of Sciences (D.Sc. degree)** in Hydraulic Engineering, University of Bejaia (Algeria).
Thesis: "Contribution to the numerical computation of steady free surface flow with shock waves" (in French), with highest distinction
- 06/2013 **Magister** degree in Hydraulic Engineering, University of Biskra (Algeria), (valedictorian).
Thesis: "Modeling and numerical simulation of unsteady pressurized flow by finite volume method" (in French), with First-Class honours
- 07/2010 **Engineer's degree (Diplôme d'Ingénieur d'Etat)** in Hydraulic Engineering, University of Bejaia (Algeria) 5-years program with thesis, (valedictorian).
Thesis: "Numerical study of water hammer transient phenomenon by the method of characteristics" (in French) with First-Class honours.

2. Employment history

- 07/2020-Present **Associate Professor** (*Maitre de Conférences "A"*) at the Department of Civil engineering and Hydraulics, Jijel University.
- 03/2018-07/2020 **Associate Professor** (*Maitre de Conférences "B"*) at the Department of Civil engineering and Hydraulics, Jijel University.
- 11/2016-03/2018 **Lecturer** (*Maitre assistant "A"*) at the Department of Civil engineering and Hydraulics, Jijel University.

- 11/2015-11/2016 **Assistant Professor** (*Maitre assistant "B"*) at the Department of Civil engineering and Hydraulic, Jijel University.
- 10/2011-06/2014 **Adjunct Professor** at the Department of Hydraulics, Bejaia University.
- 08/2013-11/2015 **Engineer of Hydraulics** at Archicom Engineering Consultancy office, Bejaia.

TEACHING EXPERIENCE

1. Teaching program courses (all years experience)

- **Hydraulics 1** Undergraduate 2nd year License courses (Bejaia University)
- **Hydraulics 2** Undergraduate 2nd year License courses (Bejaia University)
- **Hydraulics 3** Undergraduate 3rd year License courses (Bejaia University)
- **Wastewater Engineering** Undergraduate 3rd year License courses (Bejaia University)
- **Fluvial hydraulics** Graduate 1st year Master courses (Bejaia University)
- **Fluid Mechanics** Undergraduate 3rd year License courses (Jijel University)
- **Technical drawings of Construction and public works** Undergraduate 3rd year License courses (Jijel University)
- **Water Legislation** Undergraduate 3rd year License courses (Jijel University)
- **Hydraulic Planning** Undergraduate 3rd year License courses (Jijel University)
- **Pumps and pumping stations** Undergraduate 3rd year License courses (Jijel University)
- **Free surface flow** Graduate 1st year Master courses (Jijel University)
- **Pressurized flow** Graduate 1st year Master courses (Jijel University)
- **Theoretical hydraulics** Graduate 1st year Master courses (Jijel University)
- **Hydraulic Machinery** Graduate 1st year Master courses (Jijel University)
- **Numerical methods in hydraulics** Graduate 1st year Master courses (Jijel University).

2. Advanced teaching courses (for PhD students)

- **Numerical modelling of Hydraulic structures** PhD level 1st year compulsory courses (Jijel University)

3. Ph.D. Thesis supervision

- **Belharti, B.** "Contribution to the modelling of the hydraulic jump hysteresis", Bejaia University (ongoing).
- **Khelifa, M** "Contribution to the theoretical analysis of weirs and flowmeters", Bejaia University (ongoing).
- **Mebarki, B.** "Contribution to the Theoretical Analysis of Hydraulic and Geotechnical Structures", Jijel University (ongoing).
- **Amirouche, M.** "Numerical modelling of supercritical flow in curved channels", Batna University (ongoing).

4. Graduate's Thesis (M.Sc) supervised (In French)

- **Alloune, N ; Youbi, S** "Contribution à l'étude du phénomène transitoire du coup de bélier, cas d'une bifurcation" (in French), M.Sc Thesis, Bejaia University, 2011.
- **Abdoune, K.** "Approche numérique pour la résolution des problèmes d'oscillation en masse dans les cheminées d'équilibre" (in French), M.Sc Thesis, Bejaia University, 2013.
- **Khellaf I.** "Calcul numérique des écoulements non permanents à surface libre par le schéma diffusif de Lax" (in French), M.Sc Thesis, Biskra University, 2014.
- **Benamirouche, D.** "Résolution numérique des équations de Saint-Venant 1D par la méthode des différences finies" (in French), M.Sc Thesis, Bejaia University, 2014.
- **Lachi, H.** "Simulation numérique du ressaut hydraulique dans un canal à profil rectangulaire" (in French), M.Sc Thesis, Jijel University, 2018.
- **Hamimed, N.** "Calcul numérique des écoulements à débit spatialement varié -cas du déversoir latéral-" (in French), M.Sc Thesis, Jijel University, 2018.
- **Cheriet, R.** "Equilibrage des réseaux en charge par la méthode de Wood-Charles" (in French), M.Sc Thesis, Jijel University, 2018
- **Boumendjel, A. & Bouraoui, N.** "Contribution à l'étude de l'écoulement dans un canal avec apport latéral" (in French), M.Sc Thesis, Jijel University, 2019.
- **Benamara, M.M.C.** « Contribution à l'étude de l'écoulement dans les canaux avec apport latéral », (in French), M.Sc Thesis, Bejaia University, 2019.
- **Yahi, D. & Fettane, A.** « Approche analytique pour la prédiction des ondes de coup de bélier dans une conduite en charge » (in French), M.Sc Thesis, Jijel University, 2020.
- **Boukari S.** « Contribution à l'étude théorique et expérimentale de l'écoulement sur un évacuateur de crue en puits » (in French), M.Sc Thesis, Jijel University, 2021.
- **Bourezak A., & Mebirouk, M.** « Etude hydraulique de la station de pompage Kissir (W. Jijel) » (in French), M.Sc Thesis, Jijel University, 2021.
- **Boukemoukh, R.** « Analyse théorique de l'écoulement au voisinage d'une chute libre en canal a profil rectangulaire» (in French), M.Sc Thesis, Jijel University, 2022.

SCIENTIFICS PUBLICATIONS

1. International refereed journals

- **Amara, L., Achour, B.** (2023). Delta-perturbation expansion for critical flow depth problem in trapezoidal channels. *Flow Measurement and Instrumentation*, Vol. 91, 102362.
- Achour, B., **Amara, L.**, (2023). Discharge coefficient relationship for the SMBF flume. *Larhyss Journal*, (53), 95-115.
- **Amara, L.,** Carvalho, R. F., & Berreksi, A. (2022). Analytical solution for supercritical flow in rectangular channel contraction. *Water Supply*, 22(7), 6356-6369.
- Achour, B. **Amara, L.** (2022) "Discharge coefficient relationship for the sharp-edged width constriction-new theory and experiment", *Flow Measurement and Instrumentation*, Vol. 88, pp. 1-16.

- Achour, B., **Amara, L.**, (2022). Accurate discharge coefficient relationship for the Crump weir. *Larhyss Journal*, (52), 93-115.
- Achour, B., **Amara, L.**, Mehta, D. (2022). Compactness of hydraulic jump rectangular stilling basins using a broad-crested sill. *Larhyss Journal*, no 51, p. 31-41.
- **Amara, L.**, Carvalho, R.F. (2022). A simplified analytical solution for the dividing manifold flow problem. *Larhyss Journal*, (50), 95-107.
- Achour, B., **Amara, L.**, Mehta, D. (2022). New theoretical considerations on the gradually varied flow in a triangular channel. *Larhyss Journal*, (50), 7-29.
- Achour, B., **Amara, L.**, Mehta, D. (2022). Control of the hydraulic jump by a thin-crested sill in a rectangular channel- new experimental considerations. *Larhyss Journal*, (50), 31-48.
- Achour, B., **Amara, L.** (2022). "Theoretical and experimental investigation of a lateral broad-crested contraction as a flow measurement device", *Flow Measurement and Instrumentation*, Vol. 86, pp. 1-13.
- Achour, B. **Amara, L.** (2022) "Flow measurement using a triangular broad crested weir theory and experimental validation", *Flow Measurement and Instrumentation*, Vol. 83, pp. 1-10.
- Achour, B., **Amara, L.** (2022). Triangular broad crested weir theory and experiment. *Larhyss Journal*, (49), 37-66.
- Achour, B., **Amara, L.** (2022). Analytical relationship between the Strickler roughness coefficient and the absolute roughness in rough turbulent flow regime. *Larhyss Journal*, (49), 7-15
- Achour, B., **Amara, L.** (2022). Rectangular broad-crested flow meter with lateral contraction–theory and experiment. *Larhyss Journal*, (49), 85-122
- Achour, B. **Amara, L.** (2021). "New theoretical considerations on the flow parameters in the transition and smooth regimes". *Larhyss Journal*, (48), 49-71
- Achour, B. **Amara, L.** (2021). New theoretical considerations on the rough turbulent flow parameters. *Larhyss Journal*, (48), 91-108.
- Achour, B. **Amara, L.** (2021). New theoretical considerations on the gradually varied flow in a wide rectangular channel. *LARHYSS Journal* (47), 87-117.
- Achour, B. **Amara, L.** (2021). Theoretical discharge coefficient relationship for a contracted triangular notch weir, experimental analysis for the special case of the 90-degree v-notch. *LARHYSS Journal* (46), 89-100.
- Achour, B. **Amara, L.** (2021). Discharge coefficient for a triangular notch weir theory and experimental analysis. *LARHYSS Journal*, (46), 7-19.
- Achour, B. **Amara, L.** (2021). Discharge coefficient of a parabolic weir theory and experimental analysis. *LARHYSS Journal*, (46), 77-88.
- Achour, B. **Amara, L.** (2021). Theoretical discharge coefficient relationship for contracted and suppressed rectangular weirs. *LARHYSS Journal*, (45), 165-182.
- Achour, B. **Amara, L.** (2021). Discharge measurement in a rectangular open-channel using a sharp-edged width constriction theory and experimental validation. *LARHYSS Journal*, (45), 141-163.
- **Amara, L.**, & Achour, B. (2021). "Theoretical approach to stage-discharge relationship for a circular sharp-crested weir". *Larhyss journal*, (46), 101-113.
- **Amara, L.**, & Achour, B. (2020). Manning’s roughness coefficient in a trapezoidal-shaped channel. *Larhyss Journal*, 17(4), 35-42.

- Achour, B., & **Amara, L.** (2020). Critical flow in a rectangular-shaped channel. *LARHYSS Journal*, (44), 57-72.
- Achour, B., & **Amara, L.** (2020). Critical flow in a triangular-shaped channel. *LARHYSS Journal*, (44), 43-55.
- Achour, B., & **Amara, L.** (2020). New Theoretical considerations on the critical flow in a circular conduit (Part 1). *LARHYSS Journal*, (43), 103-118.
- Achour, B., & **Amara, L.** (2020). New Theoretical considerations on the critical flow in a circular conduit (Part 1). *LARHYSS Journal*, (43), 103-118.
- Achour, B., & **Amara, L.** (2020). New formulation of the Darcy-Weisbach friction factor. *LARHYSS Journal*, (43), 13-22.
- **Amara, L.**, & Achour, B. (2020). Discussion of " Discharge coefficient of shaft spillway under small heads". *LARHYSS Journal*, (43), 7-11.
- Achour, B., & **Amara, L.** (2020). Proper relationship of Manning's coefficient in a partially filled circular pipe. *LARHYSS Journal*, (42), 107-119.
- Achour, B., & **Amara, L.** (2020). Theoretical considerations on flow regime dependency of the Hazen-Williams coefficient. *LARHYSS Journal*, (42), 53-62.
- Achour, B. et **Amara, L.** (2020). "Proper Relationship of Manning's Coefficient in a Partially Filled Circular Pipe". *LARHYSS Journal*, N°42, pp. 107-119.
- **Amara, L.**, Berreksi, A., and Achour, B. (2020). "Approximate analytical solution for supercritical flow in curved rectangular channels". *Applied Mathematical Modelling*, Vol. 80, pp. 191-203.
- Ayas, H., **Amara, L.**, & Chabaat, M. (2020). "Approximate analytical analysis of longitudinal natural frequencies of a cracked beam". *International Journal of Structural Integrity*.
- **Amara, L.**, Berreksi, A. et Achour B. (2020). "Solution Analytique Exacte pour les Ecoulements Supercritiques dans les Canaux Courbes Rectangulaires". *LARHYSS Journal*, N°41, pp. 47-56.
- Ayas, H., Chabaat, M. and **Amara, L.** (2019), "Dynamic analysis of a cracked bar by the method of characteristics", *International Journal of Structural Integrity*, Vol. 10 No. 4, pp. 438-453.
- Achour, B. et **Amara, L.** (2019). "Head Loss Computation in Divergent Circular Pipe". *LARHYSS Journal*, N°40, pp. 45-65.
- **Amara, L.**, Lachi, H., et Berreksi, A. (2019). "Calcul numérique du ressaut hydraulique par un modèle aux éléments finis". *LARHYSS Journal*, N°38, pp. 59-70.
- **Amara, L.**, et Berreksi, A. (2018). "Calcul des écoulements filaires à travers un déversoir latéral par éléments finis". *Larhyss Journal*, N°35, pp. 45-58.
- **Amara, L.**, Berreksi, A., and Achour, B. (2017). "Quasi-2D model for computation of supercritical free surface flow in sudden expansion". *Applied Mathematical Modelling*, Vol. 46, pp. 396-407.
- **Amara, L.**, Berreksi, A. et Achour B. (2016). "Application de la méthode des volumes finis aux calculs de protection anti-bélier". *LARHYSS Journal*, N° 28, pp. 303-317.
- **Amara, L.**, Berreksi, A., Achour, B. and Abdoune khodir (2014). "Numerical Computation of Water Level Fluctuation in Surge Tanks using the Galerkin Method". *Dam Enginnering, International papers of technical excellence*,

International Water Power and Dam Engineering, Volume XXV, Issue 1, pp. 23-35.

- **Amara, L.**, Berreksi, A., Achour B. et Amireche, M. (2014). "Etude numérique comparative des dispositifs déprimogènes des réservoirs anti-bélier". *LARHYSS Journal* N° 19, pp. 75-85.
- **Amara, L.**, Berreksi, A. and Abdoune khodir (2013). "Computation of mass oscillations in a surge tank by finite element technique". *LARHYSS Journal*, N°15, pp. 139-149.
- **Amara, L.**, Achour, B. et Berreksi, A. (2013). "Approche numérique aux volumes finis pour le calcul de la réponse dynamique des cheminées d'équilibre". *LARHYSS Journal*, N° 14, pp. 7-19.
- **Amara, L.**, Berreksi, A. and Achour, B., (2013). "Adapted MacCormack finite-differences scheme for water hammer simulation". *Journal of Civil Engineering and Science (JCES)*, Volume 2, Issue 4, pp. 226-233.

2. Conference papers :

- **Amara, L.**, Berreksi, A. and Achour B. "Solution Analytique par Analogie au Coup de Bélier pour les Ecoulements Supercritiques sur les Coursiers Courbes". *Première Conférence internationale sur les Barrages –ICD Biskra 2018–* 12 et 13 Décembre 2018, Biskra, Algérie.
- **Amara, L.**, Berreksi, A. and Achour B. "Solution Analytique Exacte pour les Ecoulements Supercritiques dans les Canaux Courbes Rectangulaires". *Les Rencontres Nationales de Génie Civil et d'Hydraulique –RNGCH Skikda 2019–* 04 et 05 Décembre 2019, Skikda, Algérie.
- Boumendjel, A., Bouraoui, N. and **Amara, L.** "Analytical Solution and Experimental Investigation of Flows in Side Channel of Rectangular Cross-section". *Les Rencontres Nationales de Génie Civil et d'Hydraulique –RNGCH Skikda 2019–* 04 et 05 Décembre 2019, Skikda, Algérie.
- Ayas, H., Chabaat, M. and **Amara, L.** "Réponses Dynamiques d'une Poutre Fissure par la Méthode des Caractéristiques ". *Les Rencontres Nationales de Génie Civil et d'Hydraulique –RNGCH Skikda 2019–* 04 et 05 Décembre 2019, Skikda, Algérie.

3. Books

- **Lyes AMARA**, Ali BERREKSI, and Mohamed AMIRECHE. "Simulation numérique du phénomène transitoire du coup de bélier- application à des cas pratiques"(in French). Editions Universitaires Européennes (EUE), 2016.

CURRENT RESEARCH TOPICS

- Mathematical and numerical modeling of curved channels flow
- Mathematical and numerical modeling of chute transitions flow
- Numerical and theoretical analysis of spatially varied flows (side weirs, side channels)

- Theoretical and numerical modeling of hydraulic jumps
- Theoretical modeling of shaft spillways
- Theoretical analysis and experimentation of flow metering devices
- Analytical and numerical solutions of structural dynamics problems.