















- [2] C. Freska, «Linguistic description of human judgments in experts systems and in the "Soft" sciences». In: M. M. Gupta and E. Sanchez (Eds), Approximate reasoning in decision analysis, North-Holland Publishing Company, pp. 297-305. 1982.
- [3] C. Hicks F.E. and A.R. Fayek, «Forecasting ice jam risk at fort mcurray, AB, using fuzzy logic», Proceedings of the 16th IAHR International Symposium on Ice Dunedin, New Zealand, p. 112-118, 2002.
- [4] ISO, « Aspects liés à la sécurité: Principes directeurs pour les inclure dans les normes », Organisation internationale de normalisation, 1999.ICIS, 2009], ICSI, (2009), "Les Cahiers de la Sécurité Industrielle: Fréquences des événements initiateurs d'accidents", available: <http://www.icsi-eu.org/>.
- [5] M. Khalil, M.A. Abdou, M.S. Mansour, H.A. Farag, M.E. Ossman, «A cascaded fuzzy- LOPA risk assessment model applied in natural gas industry», J. Loss Prev. Proc. Ind. 25, (2012) 877-882.
- [6] E. H. Mamdani and S. Assilian, « An experiment in linguistic synthesis with a fuzzy logic controller », International Journal of Man-Machine Studies, vol. 7, no. 1, pp. 1–13, 1975. [CCPS, 2001], "Layer of Protection Analysis, simplified process assessment", Center for Chemical Process Safety of the American Institute for Chemical Engineers (AIChE), New York, 2001.
- [7] A. S. Markowski, M. Mannan, « Fuzzy Risk Matix », Journal of Hazardous Materials, 2008.
- [8] A.S. Markowski, M.S. Mannan, «Fuzzy logic for piping risk assessment (pfLOPA) », J. Loss. Prev. Proc. Ind. 22, 921-927, 2009.
- [9] M. Merad, « Analyse de l'état de l'art sur les grilles de criticité », rapport INERIS- DRA638, 16 Mars 2004.
- [10] R. Nait-Saïd, F. Zidani and N. Ouazraoui, « Modified risk graph method using fuzzy rule-based approach », Journal of Hazardous Materials, vol. 164, no. 2-3, pp. 651-658, 2009.
- [11] N. Ouazraoui, R. Nait Said, M. Bourareche and I. Sellami, «Layers of protection analysis in the framework of possibility theory», J. Haz. Mat. 262, 168– 178, 2013.
- [12] C.E Peláez and J.B. Bowles, « Using fuzzy logic for system criticality analysis », In Proceedings Annual Reliability and Maintainability Symposium, Anaheim, California, pp. 449-455, January 24-27 1994.
- [13] R.K Sharma, D. Kumar and P. Kumar, « Systemic failure mode effect analysis (FMEA) using fuzzy linguistic modeling », International Journal of Quality & Reliability Management, vol. 22, no 9, pp. 986-1004, 2005.
- [14] SONATRACH. SONATRACH Document DP HRM. 2008.
- [15] K. Xu, L. C. Tang, M. Xie, S. L. Ho, and M. L. Zhu, « Fuzzy assessment of FMEA for engine systems », Reliability Engineering & System Safety, vol. 75, no. 1, pp. 17–29, 2002.
- [16] L. Zadeh, « Fuzzy sets », Information and Control, vol. 8, pp. 338–353, 1965.
- [17] G.A. Zuniga, «Layer of protection analysis applied to ammonia refrigeration systems», Master's thesis, Texas A&M University, Available at <http://hdl.handle.net/1969.1/ETD-TAMU-3133>, 2008.

## BIOGRAPHY

**Ouazraoui Nouara**, is an Assistant Professor, Head of licence in "Risk Assessment" and supervisor of Master thesis's at Health and Safety Institute, Batna university, Algeria. Member of Laboratory of Research in Industrial Prevention (LRIP) at the same Institute (Batna University). Member of research project "Quantitative Risk Assessment and Safety Systems Performances: Contribution of Artificial Intelligence Techniques". Her research interests include quantitative risk analysis and application of fuzzy sets and possibility theories in risk assessment. Her paper has been selected as the Best Track Paper (Artificial Intelligence) for the 2015 IEOM Conference.

**Achouri Nouhed**, is an Assistant Professor and supervisor of master thesis's at Health and Occupational Safety Institute, Batna University, Algeria. Member of Laboratory of Research in Industrial Prevention (LRIP) at the same Institute (Batna University). Her current research interests include application of fuzzy set and possibility theories in risk assessment.

**Nait-Said Rachid**, Professor and Head of Master in "Risk Assessment" and supervisor of Master and Ph.D thesis's at Health and Safety Institute, Batna University, Algeria. Member of the scientific council of Health and Safety Institute. Member of Laboratory of Research in Industrial Prevention (LRIP) at the same Institute (Batna University). Chief of research project "Quantitative Risk Assessment and Safety Systems Performances: Contribution of Artificial Intelligence Techniques". His research interests include application of fuzzy logic to fault diagnosis and risk assessment.