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Application Form for WFC Academic Committee Member

Personal Info.

Name: Dorota Wilk-Kołodziejczyk

Title： Associated Professor

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Research Interest

In the post-doctoral period I continued my research work as a contractor in projects carried out at the Foundry Research Institute in Krakow (now Lukasiewicz Research Network-Krakow Institute of Technology). I was participated as a contractor in two project. In first one named: "Stimulating the mechanism of alpha + beta eutectic formation in the Cu-Al system through thermal parameters and possibilities of refining alpha phase grains and modification of alpha+beta eutectic (alpha+gamma2) structure in experimental studies and computer simulation", I was responsible for studies of a relationship between the parameters of the BA1044 alloy using classification trees and fuzzy models. In the second one named "Development of conceptualization solutions and access to knowledge components on foundry technologies in the context of innovation and production process improvement" I was responsible for the "Development and implementation of knowledge component solutions with regard to their substantive content, formalisms of knowledge representation and implementation procedures. "At the same time, I was making efforts to obtain a research project. In 2013 I received funding for my own project (LIDER- The project was implemented at the Foundry Research Institute (now the Łukasiewicz Research Network - Krakow Institute of Technology)) "Information and decision system supporting the production of ADI cast iron". The project implementation lasted until September 2017. In this project I was responsible for the implementation of the whole research work. The next project in which I participated was "Innovative production process of cast iron with the use of intelligent information and decision system", implemented as part of the INNOMOT program. The project was implemented at the Foundry Research Institute (now the Łukasiewicz Research Network - Krakow Institute of Technology) In this project I managed the implementation of Task no. 2 “Industrial network infrastructure”. The scope of the task included development of the concept of an intelligent information-decision system which, based on the analysis of technological data provided and measurement data (consumption of energy, water, etc.), using knowledge of the technological process in the field of incomplete, non-measurable (non-automated) data, and also knowledge of the technological process and casting production technology, could provide knowledge relevant in making decisions regarding parameters of the production process to obtain the optimal final product (optimization of production costs, energy consumption, product quality). The goal was to indicate the key areas in the production process requiring automation (equipment plus control software with the ability to transfer data to an intelligent information and decision system) to allow for the development and implementation of the concept of an intelligent information and decision system. The project was implemented in cooperation with an industrial plant (KUTNO Foundry) and Foundry Research Institute (now the Łukasiewicz Research Network - Krakow Institute of Technology). In another project "Numerical modelling of internal oxidation of modern iron and nickel based alloys for

application in Ultra Super Critical (USC) steam power plants", my activity was related to the development of a simulation model for the oxidation process. The project was implemented as part of the DAAD program in cooperation with the University of Osnabruck and Foundry Research Institute (now the Łukasiewicz Research Network - Krakow Institute of Technology). The project "Development of innovative working elements of forest sector and biomass processing machines based on high energy technologies of surface modification of the top layer of cast elements". My task was to develop models that will support the design process of innovative foundry alloys. The project was implemented as part of the TECHMATSTRATEG program. The last one: Manager of the task implemented under POIR.04.01.04-00-027/18-00, Project title: AGROBOT Development of innovative technical and material solutions for the construction of an autonomous agrobot. The project was implemented in cooperation with an industrial plant (KUTNO Foundry) and Foundry Research Institute (now the Łukasiewicz Research Network - Krakow Institute of Technology) and Ideaflex sp. z o.o.

Main Achievements (<200 words)

I am the author or co-author of 150 publications. The WoS database, my Hirsch index is 12,. I was the head of one research project implemented under the LIDER program, whose budget amounted to PLN 1131000. I took part in the internship and training program organized by the Ministry of Science and Higher Education as part of the "Top 500 Innovators-Science Management Commercialization" project, Stanford University, USA, July-August 2015. I am a member of the Departamental Committee on Recrutation and Dean's Committee for Diploma Examinations at the Faculty of Metals Engineering and Computer Science, AGH University of Science and Technology. In 2018 I took part in the works of the Organization Committee of the 73rd World Foundry Congress "Creative Foundry", 2018, Krakow. In the years 2011-2013 organized a postgraduate course in Business Intelligence. I am a member of the Polish Association for Artificial Intelligence and of the Technical Association of Polish Foundrymen.

Internships and courses (most important):
April 2013 – a study visit to the School of Information Technology and Electrical Engineering, The University of Queensland Australia
September 2013 – a study visit to Sheffield Hallam University, Faculty of ACES, Materials and Engineering Research Institute, Howard Street, Sheffield, UK