

International Conference on

Design and Production Engineering

July 25-26, 2016 Berlin, Germany

ADI-the prospective new material for designers and mechanical engineers

Adel Nofal

Central Metallurgical R&D Institute, Egypt

This review is an attempt to compile the results of the worldwide explosion of research and development that followed the announcement of the first production of this material, meanwhile, reference is made to the work carried at Central Metallurgical R&D Institute (CMRDI) over the past decade. Better understanding of the strengthening mechanisms of ADI has led to the development of a new technique that contribute to enhance strength and toughness of the alloy, some examples will be discussed in details such as:- ausformed ADI; squeeze cast ADI, two step ADI, and nano-structured ADI. The excellent abrasion resistance of ADI could still be remarkably increased through the development of; carbidic ADI, bainitic/martensitic (B/M) ADI, selective surface treatment. The review analyses of the key feature of important processing techniques of ADI such as: cold rolling, welding, and machining was done. A novel development of ADI is the intercritically austempered ductile iron; an exciting engineering material with a favorable combination of good strength and ductility, excellent fatigue strength and good machinability resulting from a microstructure containing colonies of proeutectoid ferrite together with isolated island of austenite.

Biography

Adel Nofal is a Professor of Metal Casting and former President of Central Metallurgical R&D Institute. He is the Head of the World Foundry Organization (WFO) technical committee ADI and member of the European Cast Iron Group (ECIG) as one of two non European scientists worldwide. He was awarded with the State Merit Award of advanced technological sciences (2010), and Award of Scientific Excellence from the Egyptian Academy for Scientific and Research Technology (2002). He is the author of about 150 scientific publication and Chairman of The Egyptian International Symposium on Science and Processing of Cast Iron (SPCI-9) – Luxor – Egypt. He is the President of Egyptian Foundry Men Society.

adelnofal@hotmail.com

Notes: