

Title: High-performance detection technology and application

Abstract: High-performance detection technology is a composite technology that integrates various disciplines and techniques, such as automation, electronics, computer, control engineering, information processing, machinery, etc, and it is the source of information and data acquisition in the manufacturing process and is of great significance to promote industrial upgrading and implement the manufacturing power strategy. To this purpose, this report firstly analyzes the status-of-the-art and development trend of detection technology, then takes blast furnace as an example, the high performance detection method, technology and application are described, including blast furnace three-dimensional surface shape detection of blast furnace based on high-temperature industrial endoscope, molten iron temperature and flow rate detection based on machine vision. Finally, following the trend of intelligent manufacturing, some thoughts and suggestions on the research of high-performance detection technology are given.



Biography: Weihua Gui, academician of Chinese Academy of Engineering, professor and doctoral supervisor of Central South University. He graduated from Central South Institute of Mining and Metallurgy in 1981 with the master's degree in industrial automation. He is currently the director of the Academic Committee of Central South University, the academic leader of the Innovation Research Group of the National Natural Science Foundation, the director of the Engineering Research Center of the Ministry of Education of Nonferrous Metallurgy Automation, the vice chairman of the China Automation Society, and the vice chairman of the China

Nonferrous Metals Society. He has long been committed to complex metallurgical production process control theory, technology and engineering application research, breaking through the key technical problems of automation of non-ferrous metal smelting and aluminum processing processes, such as copper, aluminum, lead and zinc, and the application effect is remarkable. He won 3 second prizes for national scientific and technological progress, 8 first prizes at provincial and ministerial level. He was awarded the Heliang Heli Fund Science and Technology Progress Award in 2009 and Hunan Guangzhao Technology Award in 2012. He has won the "National Model Teacher", "National Excellent Teacher", "National Excellent Science and Technology Worker", "National Nonferrous Metals Industry Labor Model", "China Nonferrous Metals Industry Excellent Science and Technology Worker", "China Process Control Lifetime Achievement Award", "China Process Control Technology Contribution Award", "Yang Jiayu Technology Award" and other honorary titles.