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Research Status and Development Consideration for Coordinate Metrology

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Abstract: Since its birth, coordinate metrology has been serving the scientific research and engineering application in the development of mechanical field, its main function of serving manufacturing process and quality inspection has already become a common consensus. But, in recent years, internet of thing and pervasive computing have established a brand new foundation for manufacturing upgrade, traditional centralized manufacturing mode is being replaced by a highly customizable distributed intelligent mode. The next generation manufacturing system such as Industry 4.0 is structured to effectively integrate globally distributed manufacturing resources together through the CPS information system. Thus, how to make coordinate metrology more suitable to serve such a manufacturing environment where information is highly integrated but production is extremely flexible distributed, is the main topic discussed in this paper (*Which will be submitted to the conference*). On the basis of combing the existing measurement techniques, a roadmap for future development is presented on two aspects. One is exploring new modes of sensing and measuring technologies, developing new methods for information acquisition and expanding the information contents under the existing researching frame. Another is to build a new sensing and measuring theoretical system for cyber-physical manufacturing interface, three specific potential direction of development were and focused for new system. At the end, several related works were also introduced and analyzed to support the argument.