1. Record Nr. UNINA9910483952203321 Autore Lv Na **Titolo** Key technologies of intelligentized welding manufacturing: welding arc acoustic sensing and monitoring technology / / Na Lv, Shanben Chen Singapore, : Springer, 2020 Pubbl/distr/stampa **ISBN** 981-15-2002-X Descrizione fisica 1 online resource (129 pages) Altri autori (Persone) ChenShanben Disciplina 671.5/2 Soggetti Welding Welding industry Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali 8 Microphone Array Technology in Welding Dynamic Process Monitoring Nota di bibliografia Includes bibliographical references. Nota di contenuto Intro -- Acknowledgements -- Contents -- 1 Multi-source Information of Arc Welding Dynamic Process -- 1.1 Introduction -- 1.2 Acoustic Signal of Welding Dynamic Process -- 1.3 Classification of Welding Acoustic Signal -- 1.4 Feature and Application Value of Arc Sound Signal -- 1.5 Influencing Factor of Arc Sound Signal -- 1.6 Microphone Array Measurement of Arc Sound -- 2 Acoustic Mechanism and Arc Sound Source Modeling for GTAW Welding -- 2.1 Basic Arc Sound Source Model -- 2.1.1 Weld Pool Oscillation Model of Arc Sound --2.1.2 Analysis and Validation of Sound Source for GTAW 2.1.3 Influence of Welding Parameters on Arc Sound Signal During Dynamic Welding -- 3 Feature Extraction and Analysis of Arc Sound Signal with Dynamic Welding Process -- 3.1 Welding Operation System Setup -- 3.2 Arc Sound Signal Preprocessing Method -- 3.2.1 Removal of DC Component -- 3.2.2 Noise-Removal Process -- 3.2.3 Region of Interest (ROI) Selected -- 3.2.4 Window Function Addition -- 3.2.5 Analysis of Arc Sound Signal in Short Time Domain -- 3.2.6 Frequency-Domain Analysis of Arc Sound Signal -- 3.2.7 Time-Frequency Analysis of Arc Sound Signal

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Sommario/riassunto

This book gives a full picture of the welding quality real-time control via arc sound information. This book presents all aspects of acoustic signal research during the welding dynamic process from the last five years. It also offers valuable and practical strategies for achieving the real-time control of welding quality via arc sound signal. Researchers, scientists, and engineers who have interests in intelligent welding could acquire intensive view and experiment procedures from the book.