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Sommario/riassunto	<p>In many industrial applications, metallic materials are exposed to harsh operating conditions. Due to a combination of chemical and thermal stresses, the constructional and functional materials are degraded, and their utility properties are lost. These undesirable events are of a physicochemical nature and are commonly known as 'corrosion'. In this Special Issue Book, 3 reviews and 18 original research papers focused on the complex relationships between the microstructure, phase constitution, and corrosion behavior of metallic materials are collected. Both high temperature and low temperature corrosion studies are included as they investigate the physicochemical processes at the material interfaces. Furthermore, possibilities for increasing the corrosion resistance of metallic materials are studied by means of surface modification and application of protective layers. This Special Issue Book, Microstructure and Corrosion Behavior of Advanced Alloys, displays the diversity and complexity of modern corrosion research. It is hoped that it will become a valuable source of reference for corrosion scientists.</p>