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Titolo	Quantum Critical Phenomena of Valence Transition [[electronic resource]] : Heavy Fermion Metals and Related Systems / / by Shinji Watanabe, Kazumasa Miyake
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Altri autori (Persone)	MiyakeKazumasa
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Nota di contenuto	Prologue -- Early History of Critical Valence Fluctuations -- Fundamentals of Heavy Fermion State -- Anomalous Phenomena due to Critical Valence Transition -- Self-Consistent Renormalization Theory -- Quantum Criticality of Valence Transition -Experiments and Theory -- Interplay between magnetic QCP and valence QCP -- Instead of Epilogue – Ubiquity of Critical Valence Fluctuations.
Sommario/riassunto	This book comprehensively presents an unconventional quantum criticality caused by valence fluctuations, which offers theoretical understanding of unconventional Fermi-liquid properties in cerium- and ytterbium-based heavy fermion metals including CeCu2(Si,Ge)2 and CeRhIn5 under pressure, and quasicrystal -YbAlB4 and Yb15Al34Au51. The book begins with an introduction to fundamental concepts for heavy fermion systems, valence fluctuation, and quantum phase transition, including self-consistent renormalization group theory. A subsequent chapter is devoted to a comprehensive description of the theory of the unconventional quantum criticality

based on a valence transition, featuring explicit temperature dependence of various physical quantities, which allows for comparisons to relevant experiments. Lastly, it discusses how ubiquitous the valence fluctuation is, presenting candidate materials not only in heavy fermions, but also in strongly correlated electrons represented by high-Tc superconductor cuprates. Introductory chapters provide useful materials for learning fundamentals of heavy fermion systems and their theory. Further, experimental topics relevant to valence fluctuations are valuable resources for those who are new to the field to easily catch up with experimental background and facts.