1. Record Nr. UNINA9910300553503321 Autore Münkler Hagen Titolo Symmetries of Maldacena-Wilson Loops from Integrable String Theory / / by Hagen Münkler Cham:,: Springer International Publishing:,: Imprint: Springer,, Pubbl/distr/stampa 2018 **ISBN** 3-030-03605-7 Edizione [1st ed. 2018.] Descrizione fisica 1 online resource (xv, 210 pages) Collana Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053 Disciplina 512.2 Soggetti Quantum field theory String theory Mathematical physics Quantum Field Theories, String Theory Mathematical Applications in the Physical Sciences Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Introduction -- Symmetries, Fields and Loops -- Symmetric Space Models -- Minimal Surfaces in AdS -- Away from Strong Coupling --Semisymmetric Space Models -- Minimal Surfaces in Superspace --Conclusion and Outlook. Sommario/riassunto The book discusses hidden symmetries in the Anti-de Sitter/conformal field theory (AdS/CFT) duality. This duality is a modern concept that asserts an exact duality between conformally invariant quantum field theories and string theories in higher dimensional Anti-de Sitter spaces, and in this way provides a completely new tool for the study of strongly coupled quantum field theories. In this setting, the book focuses on the Wilson loop, an important observable in fourdimensional maximally supersymmetric gauge theory. The dual string description using minimal surfaces enables a systematic study of the hidden symmetries of the loop. The book presents major findings, including the discovery of a master symmetry for strings in general symmetric spaces, its relation to the Yangian symmetry algebra and its action on the minimal surfaces appearing in the dual string description

of the Wilson loop. Moreover, it clarifies why certain symmetries are not

present on the gauge theory side for purely bosonic Wilson loops and, lastly, how the supersymmetrization of the minimal surface problem for type IIB superstrings can be undertaken. As such, it substantially increases our understanding and use of infinite dimensional symmetries occurring in the AdS/CFT correspondence.