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Nota di contenuto	Introduction -- The Shell Model -- Transfer Reactions and Reaction Theory -- Experimental Details for the d(28Mg,p)29Mg Reaction -- Analysis of the d(28Mg,p)29Mg Experiment -- Discussion of the d (28Mg,p)29Mg Experiment and Conclusions -- Appendix: Extracting Angles and Excitation Energy in ISS using Relativistic Kinematics -- Appendix: The Rate of Change of Centre-of-Momentum Angle with Laboratory Angle -- Appendix: Evolution of Cuts used in ISS for the d (28Mg,p)29Mg Experiment -- Appendix: Fitting Angular Distributions -- Appendix: Cross Section Data for 29Mg.
Sommario/riassunto	This work focuses on the evolution of single-particle structure in a region of the nuclear chart rich with exotic nuclear structure. The author has led the analysis of the 28Mg(d,p)29Mg reaction, measured

with the ISOLDE Solenoidal Spectrometer (ISS) at the ISOLDE facility, CERN. This was the first measurement made using this device and the first time that a solenoidal spectrometer has been used at an ISOL radioactive beam facility. Significant attention is paid to optimizing methods of analysing direct nuclear reactions taking place in solenoidal fields and, as part of this, the author has developed his own analysis codes and simulations. The thesis gives an extremely comprehensive and well-written description of this novel system and provides a canonical reference for ISS that will be of great use to researchers and students, as well as presenting some significant scientific results focused on the N=20 "island of inversion", a region of nuclides of great current interest in nuclear physics. .