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Perspectives in the Study of Transfer Reactions

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The push to study the properties of nuclei far from stability has led to a renewed interest in the use of direct transfer reactions. For example, establishing the single-particle excitations in nuclei is essential to determining a framework within which to properly understand nuclear structure; single-nucleon transfer reactions provide an important experimental probe to accomplish this. In addition, reactions involving the exchange of several nucleons can provide probes of the evolution of pairing and clustering in exotic systems. Recent glimpses into the structure of exotic nuclei have indicated considerable changes in shell structure away from stability and these findings have acted as a spur for both radioactive beam measurements, as well as detailed investigations using stable projectiles. This talk will discuss the experimental requirements for performing transfer-reaction studies. Results from recent experiments will be used to highlight the different experimental techniques that can be adopted to take advantage of the opportunities that will be made available by the new facilities that are currently being designed and constructed.