

A new Silicon Detector called Tiara is being installed in one of the cyclotrons at Texas A&M. Tiara will be used to study nuclear pairing. The specific reaction that will be studied is the  $^{26}\text{Mg} (18\text{O}, 16\text{O}) ^{28}\text{Mg}$  reaction. That is a Magnesium-26 beam impinging on an Oxygen-18 target resulting in a recoiling Oxygen-16 and Magnesium-28. The purpose of this is to find information about nuclear pairing. Nucleons have similar properties to electrons in that they obey the Pauli exclusion principle. This nuclear spin pairing gives rise to interesting effects for nuclei with more neutrons than protons. To study this we can add two neutrons to the Mg-26 nucleus. A higher  $^{26}\text{Mg} (18\text{O}, 16\text{O}) ^{28}\text{Mg}$  cross section will give a stronger nuclear pairing force because they are more easily accepted by the nucleus.