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Optimizing MicroMegas Design for Experiments in Nuclear Clustering JOSEPH LEVANO, University of Notre Dame — An Active Target Time Projection chamber is a detector which uses a gaseous target to simultaneously track charged particles from nuclear reactions and are important for radioactive beam experiments. MicroMegas are an important part of this detector because they give us the position data needed to track these particles. Charged particles create free electrons from ionization of the gas and these electrons are drifted towards the Micromegas, where they are turned into an electronic signal that is read by the front-end electronics. The arrangement of the copper strips on the MicroMegas are key to experiments because it is closely related to the resolution of our measurements. We need to test these prototypes in our ND Cube Active Target Chamber in order to see which design is most effective. Using Altium Designer, I have begun designing a prototype MicroMegas with concentric rings of pads centered around a cluster of hexagonal pads. This design allows us to maximize resolution by maximizing the number of pads for the surface area of the board, and, by using 8 octet pads to create a ring, we increase the amount of pads in each circle. I will present the results of our first design and the outlook for future studies and designs.

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