

Detecting Charged Particles in LENR Applications using CR-39

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Abstract

CR-39 was used in LENR nanoparticle experiments to investigate the emission of energetic charged particles. The experiments utilized hydrogen (or deuterium) absorption in palladium-zirconium nanoparticles. Calibration for the CR-39 surface morphology response to the particle's energy and mass was done using a linear accelerator allowing for energy spectroscopy. An automated imaging platform combined with machine learning image recognition software was used to efficiently scan samples and consistently detect particle tracks. Using these methods, a direct relationship was found between track density and number of absorption-desorption cycles. Trends between track density and other parameters are also being investigated, e.g. pressure, gas type, location in nanoparticle vessel, etc. Results from these trends and their relationship to experimental parameters will be discussed.