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Open Clusters as Gateways to Understanding the Evolution of Fluorine in the Galactic Disk

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Fluorine, an elusive yet crucial element in the field of galactic archaeology, has its significance masked by its rarity, complicating our understanding of chemical and stellar evolution. The debate over its origins is ongoing, with candidates ranging from massive stars and AGB stars to Wolf-Rayet stars and novae. In response, we've launched an ambitious project using the GIANO-B instrument on the TNG telescope to delve into the chemical evolution of fluorine across the Galactic disk, employing open clusters as pivotal indicators. This initiative stands to revolutionize our knowledge by providing detailed insights into fluorine abundance across different galactocentric distances and ages. This project is set to create the most comprehensive database of fluorine abundances in open clusters ever compiled. During my presentation, I will unveil our preliminary findings from this groundbreaking survey.

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