

From star clusters to field populations: survived, destroyed and migrated clusters



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Open Clusters as Windows into Galactic Disk Fluorine Evolution

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Fluorine remains an enigmatic element in galactic archaeology, with a scarcity that camouflages its importance in understanding chemical and stellar evolution. Various astrophysical sites, including massive stars, AGB stars, Wolf-Rayet stars, and Novae, have been proposed as fluorine producers, yet the element's origins remain a subject of debate. To shed light on this, we have initiated a specialized project that leverages the capabilities of the GIANO-B instrument at the TNG telescope to study fluorine's chemical evolution in the Galactic disk using open clusters as key tracers. Our research will uniquely provide fluorine abundance data as a function of both galactocentric distance and cluster age, a feat not achievable with current or forthcoming stellar surveys. By doing so, we aim to offer critical observational constraints to models of stellar and galactic chemical evolution. This project is poised to become the most exhaustive database on fluorine abundances in open clusters to date.

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