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The R-Process Alliance R-II Star Survey

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There exist some 30 very metal-poor stars discovered over the course of the past quarter-century that are highly enhanced with heavy elements, recording signatures of r-process events early in the Galactic history. These “r-II stars” offer observational evidence of nearly pure r-process events. With a goal of identifying 100 new r-II stars, the R-Process Alliance has completed its pilot high-resolution follow-up survey of very metal-poor Galactic halo stars, discovering an additional ten r-II stars in the southern hemisphere. Among our pilot sample, we have discovered the most metal-rich r-II star and the most actinide-enhanced star, raising important questions about the r-process that enriched these stars. We are continuing high-resolution follow-up efforts to provide critical constraints on the nature and site of the r-process.

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