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Search for an S-Wave Resonance in ^{7}Li Just Above the Proton Decay Threshold[1] NICOLAS DRONCHI, ROBERT CHARITY, LEE SOBOTKA, ANTHONY THOMAS, JON ELSON, Washington University, St. Louis, BRIAN ROEDER, ANTTI SAASTAMOINEN, Cyclotron Institute, Texas AM — Near threshold resonances play an outsized role in nucleosynthesis and applied nuclear science. The study of nuclei removed from stability has greatly extended the list of resonances very close to decay thresholds. A recent theory paper employing a continuum-extended version of the no-core shell model indicates three quarters of a century of nuclear science may have missed a resonance in ^{7}Li just above the proton decay threshold at an excitation energy of 10 MeV [1]. This is plausible as this positive parity J = 1/2 resonance would not be easy to populate, resulting in being obscured by both broader and more easily populated neighboring states. We will present our plans to search for this resonance using a secondary-beam transfer experiment and the invariant-mass technique. The latter is a technique that is ideally suited to the observation of narrow resonances just above decay thresholds. [1] M. Vorabbi, P. Navra'til, S. Quaglioni and Q. Hupin, Phys. Rev. C 100, 024304 (2019).

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