DATABASE OF UNIFIED STELLAR PROPERTIES FOR STARS WITHIN 30PC. N. R. Hinkel[1], M. C. Turnbull[2], E.E. Mamajek[3], E. Osby[4], and E.S. Shkolnik[4], and ASU NExSS Team[5] [1]Department of Physics & Astronomy, Vanderbilt University, Nashville, TN 37235 (natalie.hinkel@gmail.com), [2]SETI Institute, Carl Sagan Center for the Study of Life in the Universe, Off-Site: 2801 Shefford Drive, Madison, WI 53719, [3]JPL, [4] School of Earth and Space Exploration, Arizona State University, Tempe, AZ 85287

Introduction: It has become a common phrase in the exoplanet community that in order to know the planet, you must first know the star. Yet often, when trying to characterize planetary systems, only the physical characteristics of the star and planet are taken into account. Without the inclusion of stellar abundances and high energy emission, the physical properties of a star are merely columns in a table and our understanding of that star, its planet, and the ultimate habitability of that system is only partially complete.

We have combined newly determined high energy emission data, namely near-ultraviolet (NUV), far-ultraviolet (FUV), and X-ray flux, with the physical (ExoCat) and chemical (Hypatia Catalog) properties of stars. Our sample includes +2300 FGK-type stars that are within 30pc of the Sun in order to study and better understand planetary habitability, as part of the Nexus for Exoplanet System Science (NExSS) at ASU.

ExoCat: The Nearby Stellar Systems Catalog of Exoplanet Imaging Missions, or ExoCat, provides astrometry and a complete breakdown of multiplicity (true single star, known multiple system, and how they are referenced within the literature) for stars within 30 pc of the Sun [1]. ExoCat was created to be used in planning for direct imaging exoplanet missions.

Hypatia Catalog: The Hypatia Catalog is a database of stellar abundances which includes +65 elements and species within >6000 FGK-stars that are less than 150 pc from the Sun [2, 3]. Hypatia was compiled from over 200 literature sources such that the data were homogenized to the same solar scale. The median value was used during those instances where multiple literature values existed for the same element in the same star. Hypatia currently contains stellar abundances for +300 exoplanet host stars.

High Energy Emission Data: UV photometry from the Galaxy Evolution Explorer (GALEX) space mission were used to determine NUV and FUV emission for the sample of stars. Activity trends were identified with respect to effective temperature and outlying systems with a low-probability for habitability were identified (see abstract by Ella Osby). Additionally, X-ray data were combined from three missions, namely ROSAT, XMM, and Chandra -- which has never before been done. We provide X-ray luminosity and L_X/L_bol, which varies from youngest to oldest by four orders of magnitude (10^-7--10^-7).

Application: The compilation of this huge variety of stellar data has allowed us to explore the definition of planetary habitability in a multidimensional capacity. We will be able to identify stars and planetary systems with a significant chance of hosting a habitable planet by analyzing the physical, chemical, and high energy components that may ultimately be life encouraging or life threatening.

References: [1] Turnbull, M.C. (2015) arXiv 1510.01731v1. [2] Hinkel, N. R., Timmes, F. X., Young, P. A., Pagano, M. D., & Turnbull, M. C. (2014), AJ, 148, 54. [3] Hinkel, N. R., Young, P. A., Pagano, M. D., et al. (2016), *ApJS, 226*, 4.