AKSHATHA KONAKONDULA VYDULA

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EDUCATION

Arizona State University, Tempe-AZ, USA *August 2020 - Present*
Ph.D., Astrophysics Cumulative GPA: 4.00/4.00
School of Earth and Space Exploration

RV College of Engineering, Bengaluru-KA, India *2016-2020*
B.Engineering GPA 9.64/10.00
Department of Electronics and Communication

RESEARCH INTERESTS

Computational Astronomy, Epoch of Reionization, High redshift radio astronomy, Data analysis and instrumentation, Planetary science for Neutron lifetime measurement

RESEARCH EXPERIENCE

Graduate Research Associate at Arizona State University (Aug 2020-present)
Advisor: Dr. Judd Bowman and Dr. Danny Jacobs
I work at the Low Frequency Cosmology lab, focusing on radio astronomical data analysis & instrumentation for detecting signal from Epoch of Reionization. I mainly work with Experiment to Detect Global EoR Signal (EDGES) and OVRO-LWA.

Graduate Research Assisstant at Los Alamos National Laboratory, New Mexico (May 2021-Aug 2021)
Advisor: Dr.Daniel Coupland **Collaborators:** Dr.Katherine Mesick, Dr.Brain Weaver & Dr.Craig Hardgrove
Worked on simulations and numerical modelling for measurement of Neutron lifetime using space-based neutron spectrometer.

Undergrad Research Fellow at University of Groningen, Netherlands (Jan 2020 - May 2020)
Advisor: Dr. Harish Vedantham and Dr. Leon Koopmans
Developed a pipeline for the analysis and detection of radio recombination lines and high red-shifted absorption lines using very high spectral resolution observations in LOFAR Epoch of Reionization fields around North Celestial Pole.

Indian Academy of Sciences Fellow at Raman Research Institute (Jun 2019-Jul 2019)
Advisor: Dr. Avinash Deshpande
Worked on Primary beam pattern measurements of Sky Watch Array Network(SWAN). With other summer interns, worked on detection of 21cm signal from hyperfine spinflip transition of hydrogen present in interstellar medium using pyramidal horn antenna developed in-house, tested and carried out observations in Gauribidanur radio observatory.

Indian Academy of Sciences Fellow at Raman Research Institute (Jun 2018-Jul 2018)
Advisor: Dr. Udaya Shankar and Dr. Ravi Subramaniam
Worked on Application of wavelets for the detection of the redshifted Global 21cm signal from the Epoch of Reionization.

PAPERS IN PREP

1. J.D. Bowman, **A.K. Vydula**, D. Lewis, K.Crawford, M. Kolopanis, A.E.E. Rogers, S.G. Murray, N. Mahesh, R.A. Monsalve and P.Sims **High Latitude Galactic Radio Recombination Lines Less using EDGES** (*Expected submission: End of Spring 2022*)
2. **A.K. Vydula**, D.D.S. Coupland, K.E. Mesick, B. Weaver, C. Hardgrove **Numerical modeling and Bayesian model approach in Measurement of Neutron lifetime using a Space-based Neutron spectrometer** (*Expected submission: Summer 2022*)
3. **A.K. Vydula**, H. K. Vedantham, L. V. E. Koopmans **An unbiased search for spectral lines in radio sources around the northcelestial pole at 150 MHz with LOFAR** (*Summer/Fall 2022*)

TALKS

1. **A.K. Vydula** *Transition from Engineering to Astrophysics* at **National Space Society-USA, Mumbai** (Jan 24, 2022)
2. **A.K. Vydula**, D.D.S. Coupland, K.E. Mesick, B. Weaver, C. Hardgrove *Measurement of Neutron lifetime using Space based Neutron Spectrometer* at **LANL Summer Symposium (Aug 3-4, 2021)**.
3. **A.K. Vydula**, D.D.S. Coupland, K.E. Mesick, B. Weaver, C. Hardgrove *Measurement of Neutron lifetime using Space based Neutron Spectrometer* at **SESE annual Symposium (Aug 18, 2021)**.

SKILLS

Tools: Python (Proficient), C and C++ (Intermediate), MatLab and IDL (Beginner)
Languages: English, Kannada, Hindi, Telugu - (proficient in reading, writing and speaking), Tamil and Spanish -(basic understanding)

ACADEMIC ACHIEVEMENTS

1. SESE Student Award (Fall 2020, Summer 2021)
2. Secured **6th rank** in Karnataka State Senior Secondary Examination (Class XII, taken up by **0.7 million** students annually.
3. Secured **78th rank** in the State level Common Entrance test of Karnataka (K-CET, 2016, taken by **0.5 million** students annually).
4. Regional topper of South Indian Mathematics Olympiad (SIMO).
5. IIE WeTech Goldman Sachs mentorship scholar (offered to only 45 female students in STEM courses across India)

INTERESTS AND ACTIVITIES

1. Designed a one-week curriculum with a focus on exoplanets for early start freshman undergrads majoring in Physics, Astrophysics and Mathematics.
2. Current organizer of bi-weekly Astrophysics Journal Club for graduate students at SESE, ASU.
3. Co-Founded dhRuVa, Astrophysics Club of R V College of Engineering.
4. Served as the Chair of IEEE Student chapter of RV College of Engineering in 2019.
5. Served as the Editor of bi-annual newsletter of RV College of Engineering from Jan-2018 to Dec-2019