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The Star Formation in Radio Survey (SFRS): Multi-Band VLA Imaging for 50 Nearby Star-Forming Galaxies in SINGS/KINGFISH SEAN LINDEN, Univ of Virginia, THE STAR FORMATION IN RADIO SURVEY COLLABORATION[1] — Radio emission from galaxies is powered by a combination of distinct physical processes. And although it is energetically weak with respect to a galaxys bolometric luminosity, it provides critical dust un-biased information on the massive star formation activity, as well as access to the relativistic [magnetic field + cosmic rays (CRs)] component in the interstellar medium (ISM) of galaxies. Here I present the preliminary results from a Jansky Very Large Array (VLA) 33GHz (Ka-Band), 15GHz (Ku-Band) and 3 GHz (S-Band) imaging campaign of 112 extragalactic nuclei and star-forming regions in 50 nearby ($d \leq 30$Mpc) normal star-forming galaxies at scales of 30-300 pc, taken as part of the Star Formation in Radio Survey (SFRS). Our initial investigation includes comparisons of 33GHz source morphologies with H-alpha and 24um imaging, showing that in general the two trace each other very closely. By utilizing the lower frequency Ku- and S-band data we can do proper thermal/non-thermal spectral energy decompositions of each source and have begun making spectral index maps to compare how the contributions of each emission mechanism change as a function of distance from individual star-forming regions and global region in the galaxy.

[1]I am also working closely with the Great Observatories All-Sky LIRG Survey

Sean Linden
Univ of Virginia

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