

HST UV initiative: your support is needed!

Dear massive star pundits,

Please remember to fill in the survey on the HST initiative:

<https://www.surveymonkey.com/r/Z8YPG5X>

(Deadline: Dec 7)

Below you will find a letter from your OC to clarify the position of our community to the Working Group. As stated, we welcome individual inputs, but we would also very much welcome specific support for our letter. Strong support for this spectral atlas will simply make it much more likely to actually happen!

All the best,

Jorick Vink (president),

Nicole St-Louis (vice-president),

Jose Groh, Asif ud-Doula, Nidia Morrell, Lidia Oskinova, Fabrice Martins

The IAU commission on massive stars (G2) was delighted to learn about the great initiative of a UV legacy programme with HST.

We acknowledge that our massive star community is diverse, and we very much welcome responses by individual scientists. We have encouraged this by circulating the survey among our community in order to support the working group in developing the most fruitful programme.

Yet, as the voice of the massive-star community at large, we wish to convey to you that we are convinced that our community would be absolutely thrilled by the prospect of HST observing hundreds of hot massive stars in the SMC & LMC spectroscopically -- leading to a legacy Atlas.

Understanding massive stars at low metallicity is crucial for various fields of astrophysics, from stellar physics to feedback processes, from star formation to interstellar medium physics, from supernovae to cosmology. As of today, the best low-metallicity laboratories for massive stars studies are the LMC and SMC. Reliable stellar and wind parameters of massive stars in the Magellanic Clouds are mandatory to understand mass loss and stellar evolution.

The number of high-quality spectra of such stars in the SMC and LMC currently available is insufficient to make significant progress in our understanding of the various factors affecting massive star physics and evolution and this hinders progress in the study of the progenitors of merging compact objects, as well as star formation at low and high redshift.

To be able to make a scientific breakthrough in our understanding of massive stars, two key elements are required. First, far-UV spectra of individual massive stars must be obtained and second, a very large number of spectra per galaxy (hundreds) is essential, as we need to disentangle several physical processes.

We not only think that the science is exciting but also that it will result in a long-lasting legacy for the unique UV capabilities of HST. We are confident that our community has the required skills & expertise to make this endeavour a splendid success. If the UV initiative becomes a reality, we plan to organise a workshop to further the discussion on how to exploit this vast legacy data-set in the most optimal way so it benefits all relevant communities, including those working on massive stars, dwarf galaxies, young clusters, star-forming galaxies, and high-redshift cosmology, just in time for the advent of the next generation of instruments such as JWST and the ELTs.

Weblink:

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