

# After SDSS-IV: Call for Letters of Intent

## ***Background***

As part of the planning procedures within the ARC and SDSS communities, an “After SDSS-IV” (AS4) Futures Committee was established that solicited white papers in Fall 2015 to determine whether a potential future experiment would be viable. After review of the white papers received during that effort (see <http://sdss.org/future> for a summary), a proposal was submitted to the Sloan Foundation to continue the planning and evaluation process. As part of this continuing process, the AS4 Steering Committee (SC) solicits Letters of Intent (LOIs) from the astronomical community regarding potential future surveys to be performed under a next-generation experiment in the context of 2020s astronomy. SDSS continues to lead the way in transforming both the scientific and cultural landscape of Astrophysics and we anticipate any AS4 program to continue this tradition. In the 2020s, the community will have access to large (>20m) optical telescopes on the ground, multiple wide-field spectroscopic facilities, as well as a host of time-domain facilities across the globe. Any next-generation SDSS activity must be as aggressive and forward thinking as the 2020s astronomical portfolio demands. LOIs will form the basis of future proposals, due in Fall 2016, which will be used to identify partners in and resources for an AS4 survey.

## ***Current Goal***

The SC is soliciting bold and imaginative projects from the astronomical community in order to determine the most exciting possible future for the SDSS facilities at APO and LCO. Proposers are encouraged to think broadly and ambitiously about specific scientific programs in the context of Astronomy in 2020. This could be based on the existing telescopes and instruments, or on modifications, improvements and augmentations thereof. Writers should sketch out essential parameters within the LOI for the proposed science case. LOIs should specify both hardware requirements (telescopes and instrumentation requirements such as spectral resolution, cadence, wavelength coverage) as well as science requirements (target densities, hemisphere, exposure times, survey volume and area). Proposers should make clear how the outlined scientific program will be state-of-the art over the 2020-2025 timeframe in which it would be realized, highlighting the competitive edge vis-à-vis other planned capabilities of that era. The SC encourages ideas related to infrastructure improvements and capability-enhancing upgrades.

## ***Time Domain Astronomy***

As part of the AS4 Futures Process, the general area of Time Domain Astronomy (TDA) was identified as warranting particular consideration and, as a result, a subcommittee on TDA was established whose report can be found at [www.sdss.org/future/](http://www.sdss.org/future/). This represents one of several possible scientific directions an AS4 program could take, and we encourage LOIs in this area. We note that a committee has also been established to investigate the possibility of upgrading the facility with a robotic fiber positioner to reduce the observational overheads and allow efficient programs with short exposures.

### ***Who Can Submit LOIs?***

We welcome LOIs from any groups internal or external to current SDSS-IV members. LOIs should not contain information that is proprietary or otherwise confidential, as their content may be discussed widely within the ARC and SDSS communities. An LOI does not represent an institutional endorsement nor a commitment of an individual's involvement in a further proposal. LOIs will serve as input to the SC, even if the writers do not foresee initiating a proposal.

### ***What if I already submitted a white paper?***

Teams who submitted white papers in 2015 are encouraged to submit an LOI. If the previously submitted white paper was modest in scope, we encourage teams to outline clearly the science-return for an expanded program as a function of the proposed expansion. If your white paper was already ambitious, we encourage you to distill the essential content of your WP into an LOI.

### ***Submitting your Letter of Intent***

The LOI should be no more than 2 pages of description and must be emailed as a single PDF document to [as4-sc.at.sdss.org](mailto:as4-sc.at.sdss.org). Review of LOIs will begin on May 1, 2016. Please include the last name of the contact person in your email subject line and in all file names. LOIs may represent an individual or a team; please include the names and institutions of interested members, using a 3rd page if needed.

### ***Pre-Submission Telecon***

The SC will be available for a telecon on April 6, 2016 to answer any questions about the LOI submission and review process. Teleconference details will be provided separately at [www.sdss.org/future](http://www.sdss.org/future).

### ***LOI Review and Proposal Solicitation***

An initial review of LOIs will be completed by the SC by June 15, 2016. Teams will be invited to work on full proposals during a series of supported summer workshops (virtual and in person) in coordination with the SC. A proposal-writing workshop will occur immediately before or after the upcoming SDSS-IV collaboration meeting in Madison, Wisconsin on June 26-30, 2016.

### ***Proposer Resources***

Information for LOI writers will be made available at [www.sdss.org/future](http://www.sdss.org/future)

Individuals considering submitting an LOI are welcome to consult with members of the AS4 Steering Committee:

Juna Kollmeier (Carnegie Observatories, *Chair*, [jak.at.obs.carnegiescience.edu](mailto:jak.at.obs.carnegiescience.edu))

Conny Aerts (KU Leuven/Radboud) Scott Anderson (UW) Matthew Bershadsky (U. of Wisconsin)

Michael Blanton (NYU) Daniel Eisenstein (Harvard) Dani Maoz (TAU) Hans-Walter Rix (MPIA)

Connie Rockosi (UC Santa Cruz) Bruce Gillespie (ARC) Rene Walterbos (ARC)