



AMERICAN ASTRONOMICAL SOCIETY

April 13, 2020

The Honorable José E. Serrano
Chairman
House Appropriations Subcommittee for
Commerce, Justice, Science & Related Agencies
2354 Rayburn House Office Building
Washington, DC 20515

The Honorable Robert Aderholt
Ranking Member
House Appropriations Subcommittee for
Commerce, Justice, Science & Related Agencies
1203 Longworth House Office Building
Washington, DC 20515

The Honorable Jerry Moran
Chairman
Senate Appropriations Subcommittee for
Commerce, Justice, Science & Related Agencies
521 Dirksen Senate Office Building
Washington, DC 20510

The Honorable Jeanne Shaheen
Ranking Member
Senate Appropriations Subcommittee for
Commerce, Justice, Science & Related Agencies
506 Hart Senat Office Building
Washington, DC 20510

Dear Chairmen Serrano and Moran and Ranking Members Aderholt and Shaheen,

We write to you on behalf of the members of the American Astronomical Society (AAS) and its Laboratory Astrophysics Division (LAD) to express our concern with the President's FY 2021 Budget Request for the National Institute of Standards and Technology (NIST). The mission of LAD is to advance our understanding of the universe by researching the underlying processes at the atomic level that drive the cosmos. The new measurements and discoveries we make require a strong foundation in precision laboratory measurements, particularly for "heavy" atoms like iron, and in calibrations standards. For over 100 years, NIST has provided this foundation for U.S. industry and the rest of the scientific enterprise and the FY21 budget request puts this world-leading service at great risk.

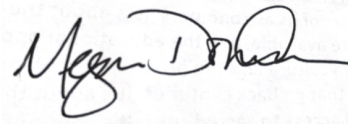
The Budget Request for FY 2021 proposes to cut NIST's Scientific and Technical Research and Services account by \$102 million (-13.5%), with nearly 400 staff positions lost. Within this account, the **Fundamental Measurement, Quantum Science, and Measurement Dissemination** program would be cut by \$17.8 million (-9.3%) impacting 73 staff positions. The proposed cut would reduce spending in metrology and measurement, including calibration services crucial to laboratory measurements, and cost the U.S. its leadership in research that we have pioneered. As the NIST Budget Request itself notes, these cuts mean that "... even with other providers available the level of uncertainty in measurement comparability across the world will increase." These programs are crucial to a wide range of industry and scientific research, including our work in the astronomical sciences.

The Request prioritizes funding for quantum science and technology, but this work relies upon the atomic properties tracked by the NIST atomic spectral database located within the Fundamental Measurement, Quantum Science, and Measurement Dissemination program. The data contained in this atomic spectral database has been the global gold-standard for theoretical calculations and laboratory measurements. Virtually every publication in the world seeking to extend our knowledge of atomic, ionic, or molecular material seen in the lab or in outer space begins with a comparison to the NIST database, which has been maintained and updated for decades by a dedicated and highly experienced team. The NIST atomic spectral database is the wellspring for many other databases, such as the HITRAN database used to model the Earth's atmosphere, or the Chianti atomic database used to model the Sun's atmosphere. Cutting funding for the program that contains it will permanently set back these efforts

and our ability to understand solar effects on our atmosphere, solar wind distribution events on communication and scientific satellites, general quantum processes, and the physics of the cosmos.

We urge you to reject the proposed cuts in order to maintain these critical services by providing funding for the program at or above the FY 2020 level. We are also reaching out to NIST leadership to express our support as users of these services in the hopes of avoiding similar proposals in future requests.

Sincerely,

A handwritten signature in black ink, appearing to read "Megan Donahue". The signature is fluid and cursive, with the first name being more prominent.

Megan Donahue
President, AAS

A handwritten signature in blue ink, appearing to read "Phillip C. Stancil". The signature is cursive and somewhat stylized, with the first name being the most legible part.

Phillip C. Stancil
Chair, LAD