

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

DEPARTMENT OF APPLIED PHYSICS AND APPLIED MATHEMATICS

October 8, 2014

Mr. Ross Basri, Chair
“Blue” Panel – Science for Policy Seminar
Department of Applied Physics and Applied Mathematics
Columbia University

Dear Mr. Basri:

First, let me thank you for accepting the task of chairing the “Blue” Panel during our Science for Policy Seminar. This is an important time for our nation, and major policy decisions require thoughtful, informed advice regarding the science and technology regarding the future.

Since the first discovery of an exoplanet in 1988, scientists have detected over 4,800 confirmed and candidate exoplanets. Most of exoplanets are detected indirectly, and advancements in the techniques used to detect long-orbit planets and coronagraphy to take images and spectra of large planets in orbits present the possibility that planets will be found capable of supporting life as we now understand. In June 2014, the first scientific meeting devoted to planets that lie at orbit radii of 1-2 AU was held in Boston to report what is known about exoplanets and the prospects for improved detection and planetary characterization. New missions have been recommended in NASA’s *Astrophysics Implementation Plan* (2012) and in the National Research Council’s Decadal Survey of Astronomy and Astrophysics, *New Worlds, New Horizons* (2011). These missions include the Kepler space observatory (launched in 2009), the WFIRST near-infrared-imaging and low-resolution-spectroscopy space telescope, and mission concepts like Exo-S and Exo-C.

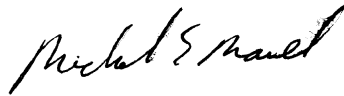
Considering the rapid progress of detecting and characterizing exoplanets, I ask your panel to assess the scientific and technical strategies now being followed to find and identify exoplanets with the potential to support human life. Please comment specifically on the research strategies of NASA’s Exoplanet Exploration Program (ExEP) and recommend whether any changes are needed to insure the success of a long-term of discovery of life-inhabitable exoplanets.

Your panel should make use of prior studies and ongoing programs. In particular, the 2011 NRC *New Worlds, New Horizons* report and the detailed panel recommendations. Please also review the ideas and concepts presented at the 224th Meeting of the American Astronomical Society and the program schedule of NASA’s ExEP. Your panel should also comment on the

potential for discovering evidence of life on other planets and the impact such a discovery would have on our nation.

Your report and policy recommendation will be immediately useful and required for decisions before the January 2015 deadline. I therefore request that you submit your Panel's report to me by December 1, 2014.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael E. Mauel". The signature is fluid and cursive, with the first name "Michael" and last name "Mauel" clearly distinguishable.

Michael E. Mauel
Professor of Applied Physics

cc: "Blue" Panel Members:
Mark Greenan
Ari Turkiewicz
Richard Creswell
Jason Williams