COMMITTEE FOR A DECADAL SURVEY OF ASTRONOMY AND ASTROPHYSICS

ROGER D. BLANDFORD, Stanford University, Chair

MARTHA P. HAYNES, Cornell University, Vice Chair

JOHN P. HUCHRA, Harvard University, Vice Chair

MARCIA J. RIEKE, University of Arizona, Vice Chair

LYNNE HILLENBRAND, California Institute of Technology, Executive Officer

STEVEN J. BATTEL, Battel Engineering

LARS BILDSTEN, University of California, Santa Barbara

JOHN E. CARLSTROM, University of Chicago

DEBRA M. ELMEGREEN, Vassar College

JOSHUA FRIEMAN, Fermi National Accelerator Laboratory

FIONA A. HARRISON, California Institute of Technology

TIMOTHY M. HECKMAN, Johns Hopkins University

ROBERT C. KENNICUTT, JR., University of Cambridge

JONATHAN I. LUNINE, University of Arizona/University of Rome, Tor Vergata

CLAIRE E. MAX, University of California, Santa Cruz

DAN McCAMMON, University of Wisconsin

STEVEN M. RITZ, University of California, Santa Cruz

JURI TOOMRE, University of Colorado

SCOTT D. TREMAINE, Institute for Advanced Study

MICHAEL S. TURNER, University of Chicago

NEIL deGRASSE TYSON, Hayden Planetarium, American Museum of Natural History

PAUL A. VANDEN BOUT, National Radio Astronomy Observatory

A. THOMAS YOUNG, Lockheed Martin Corporation (retired)

Staff

DONALD C. SHAPERO, Director, Board on Physics and Astronomy (BPA)

MICHAEL H. MOLONEY, Astro2010 Study Director and Director, Space Studies Board (SSB)

BRANT L. SPONBERG, Senior Program Officer, BPA (until December 2009)

ROBERT L. RIEMER, Senior Program Officer, BPA

BRIAN D. DEWHURST, Program Officer, Aeronautics and Space Engineering Board (until July 2009)

JAMES C. LANCASTER, Program Officer, BPA

DAVID B. LANG, Program Officer, BPA

TERI THOROWGOOD, Administrative Coordinator, BPA (from November 2009)

CARMELA CHAMBERLAIN, Administrative Coordinator, SSB

CARYN J. KNUTSEN, Research Associate, BPA

LaVITA COATES-FOGLE, Senior Program Assistant, BPA (until October 2009)

BETH DOLAN, Financial Associate, BPA

SCIENCE FRONTIERS PANELS

Panel on Cosmology and Fundamental Physics

DAVID N. SPERGEL, Princeton University, Chair,
DAVID WEINBERG, Ohio State University, Vice Chair
RACHEL BEAN, Cornell University
NEIL CORNISH, Montana State University
JONATHAN FENG, University of California, Irvine
ALEX V. FILIPPENKO, University of California, Berkeley
WICK C. HAXTON, University of Washington
MARC P. KAMIONKOWSKI, California Institute of Technology
LISA RANDALL, Harvard University
EUN-SUK SEO, University of Maryland
DAVID TYTLER, University of California, San Diego
CLIFFORD M. WILL, Washington University

Panel on Galaxies Across Cosmic Time

C. MEGAN URRY, Yale University, Chair
MITCHELL C. BEGELMAN, University of Colorado, Vice Chair
ANDREW J. BAKER, Rutgers University
NETA A. BAHCALL, Princeton University
ROMEEL DAVÉ, University of Arizona
TIZIANA DI MATTEO, Carnegie Mellon University
HENRIC S. W. KRAWCZYNSKI, Washington University
JOSEPH MOHR, University of Illinois at Urbana-Champaign
RICHARD F. MUSHOTZKY, NASA Goddard Space Flight Center
CHRIS S. REYNOLDS, University of Maryland
ALICE SHAPLEY, University of California, Los Angeles
TOMMASO TREU, University of California, Santa Barbara
JAQUELINE H. VAN GORKOM, Columbia University
ERIC M. WILCOTS, University of Wisconsin

Panel on the Galactic Neighborhood

MICHAEL J. SHULL, University of Colorado, Chair
LEO BLITZ, University of California, Berkeley
JULIANNE DALCANTON, University of Washington
BRUCE T. DRAINE, Princeton University
ROBERT FESEN, Dartmouth University
KARL GEBHARDT, University of Texas
JUNA KOLLMEIER, Observatories of the Carnegie Institution of Washington
CRYSTAL MARTIN, University of California, Santa Barbara
JASON TUMLINSON, Space Telescope Science Institute
DANIEL WANG, University of Massachusetts
DENNIS ZARITSKY, University of Arizona
STEPHEN E. ZEPF, Michigan State University

PREPUBLICATION COPY—SUBJECT TO FURTHER EDITORIAL CORRECTION

Panel on Stars and Stellar Evolution

ROGER A. CHEVALIER, University of Virginia, Chair

ROBERT P. KIRSHNER, Harvard-Smithsonian Center for Astrophysics, Vice Chair

DEEPTO CHAKRABARTY, Massachusetts Institute of Technology

SUZANNE HAWLEY, University of Washington

JEFFREY R. KUHN, University of Hawaii

STANLEY OWOCKI, University of Delaware

MARC PINSONNEAULT, The Ohio State University

ELIOT QUATAERT, University of California, Berkeley

SCOTT RANSOM, National Radio Astronomy Observatory

HENDRIK SCHATZ, Michigan State University

LEE ANNE WILLSON, Iowa State University

STANFORD E. WOOSLEY, University of California, Santa Cruz

Panel on Planetary Systems and Star Formation

LEE W. HARTMANN, University of Michigan, Chair

HECTOR ARCE, Yale University

CLAIRE CHANDLER, National Radio Astronomy Observatory

DAVID CHARBONNEAU, Harvard University

EUGENE CHIANG, University of California, Berkeley

SUZAN EDWARDS, Smith College

ERIC HERBST, The Ohio State University

DAVID C. JEWITT, University of California, Los Angeles

JAMES P. LLOYD, Cornell University

EVE C. OSTRIKER, University of Maryland

DAVID J. STEVENSON, California Institute of Technology

JONATHAN C. TAN, University of Florida

DAN M. WATSON, University of Rochester

Staff

DONALD C. SHAPERO, Director, Board on Physics and Astronomy (BPA)

MICHAEL H. MOLONEY, Astro2010 Study Director and Director, Space Studies Board (SSB)

BRANT L. SPONBERG, Senior Program Officer, BPA (until December 2009)

ROBERT L. RIEMER, Senior Program Officer, BPA

DAVID B. LANG, Program Officer, BPA

CARMELA CHAMBERLAIN, Administrative Coordinator, SSB

CARYN J. KNUTSEN, Research Associate, BPA

LaVITA COATES-FOGLE, Senior Program Assistant, BPA (until October 2009)

BETH DOLAN, Financial Associate, BPA

PROGRAM PRIORITIZATION PANELS

Panel on Electromagnetic Observations from Space

ALAN DRESSLER, Observatories of the Carnegie Institution of Washington, Chair

MICHAEL BAY, Bay Engineering Innovations

ALAN P. BOSS, Carnegie Institution of Washington

MARK DEVLIN, University of Pennsylvania

MEGAN DONAHUE, Michigan State University

BRENNA FLAUGHER, Fermi National Accelerator Laboratory

TOM GREENE, NASA Ames Research Center

PURAGRA (RAJA) GUHATHAKURTA, University of California Observatories/Lick Observatory

MICHAEL G. HAUSER, Space Telescope Science Institute

HAROLD MCALISTER, Georgia State University

PETER F. MICHELSON, Stanford University

BEN R. OPPENHEIMER, American Museum of Natural History

FRITS PAERELS, Columbia University

ADAM G. RIESS, Johns Hopkins University

GEORGE H. RIEKE, Steward Observatory, University of Arizona

PAUL L. SCHECHTER, Massachusetts Institute of Technology

TODD TRIPP, University of Massachusetts at Amherst

Panel on Optical and Infrared Astronomy from the Ground

PATRICK S. OSMER, The Ohio State University, Chair

MICHAEL SKRUTSKIE, University of Virginia, Vice Chair

CHARLES BAILYN, Yale University

BETSY BARTON, University of California, Irvine

TODD A. BOROSON, National Optical Astronomy Observatory

DANIEL EISENSTEIN, University of Arizona

ANDREA M. GHEZ, University of California, Los Angeles

J. TODD HOEKSEMA, Stanford University

ROBERT P. KIRSHNER, Harvard-Smithsonian Center for Astrophysics

BRUCE MACINTOSH, Lawrence Livermore National Laboratory

PIERO MADAU, University of California, Santa Cruz

JOHN MONNIER, University of Michigan

IAIN NEILL REID, Space Telescope Science Institute

CHARLES E. WOODWARD, University of Minnesota

Panel on Particle Astrophysics and Gravitation

JACQUELINE N. HEWITT, Massachusetts Institute of Technology, Chair

ERIC G. ADELBERGER, University of Washington

ANDREAS ALBRECHT, University of California, Davis

ELENA APRILE, Columbia University

JONATHAN ARONS, University of California, Berkeley

BARRY C. BARISH, California Institute of Technology

JOAN CENTRELLA, NASA-Goddard Space Flight Center

PREPUBLICATION COPY—SUBJECT TO FURTHER EDITORIAL CORRECTION

DOUGLAS FINKBEINER, Harvard University

KATHY FLANAGAN, Space Telescope Science Institute

GABRIELA GONZALEZ, Louisiana State University

JAMES B. HARTLE, University of California, Santa Barbara

STEVEN M. KAHN, Stanford University

JEREMY N. KASDIN, Princeton University

TERESA MONTARULI, University of Wisconsin-Madison

ANGELA V. OLINTO, University of Chicago

RENE A. ONG, University of California, Los Angeles

HELEN R. QUINN, SLAC National Laboratory (retired)

Panel on Radio, Millimeter, and Submillimeter Astronomy from the Ground

NEAL J. EVANS, University of Texas, Chair

JAMES M. MORAN, Harvard University, Vice Chair

CRYSTAL BROGAN, National Radio Astronomy Observatory

AARON S. EVANS, University of Virginia

SARAH GIBSON, National Center for Atmospheric Research, High Altitude Observatory

JASON GLENN, University of Colorado at Boulder

NICKOLAY Y. GNEDIN, Fermi National Accelerator Laboratory

CORNELIA C. LANG, University of Iowa

MAURA MCLAUGHLIN, West Virginia University

MIGUEL MORALES, University of Washington

LYMAN A. PAGE JR., Princeton University

JEAN L. TURNER, University of California, Los Angeles

DAVID J. WILNER, Smithsonian Astrophysical Observatory

Staff

DONALD C. SHAPERO, Director, Board on Physics and Astronomy (BPA)

MICHAEL H. MOLONEY, Astro2010 Study Director and Director, Space Studies Board (SSB)

BRANT L. SPONBERG, Senior Program Officer, BPA (until December 2009)

ROBERT L. RIEMER, Senior Program Officer, BPA

BRIAN D. DEWHURST, Program Officer, Aeronautics and Space Engineering Board (until July 2009)

JAMES C. LANCASTER, Program Officer, BPA

CARMELA CHAMBERLAIN, Administrative Coordinator, SSB

CARYN J. KNUTSEN. Research Associate. BPA

LaVITA COATES-FOGLE, Senior Program Assistant, BPA (until October 2009)

BETH DOLAN, Financial Associate, BPA

BOARD ON PHYSICS AND ASTRONOMY

ADAM S. BURROWS, Princeton University, Chair

PHILIP H. BUCKSBAUM, Stanford University, Vice Chair

RICCARDO BETTI, University of Rochester

PATRICK L. COLESTOCK, Los Alamos National Laboratory (until June 30, 2010)

JAMES DRAKE, University of Maryland

JAMES EISENSTEIN, California Institute of Technology

DEBRA M. ELMEGREEN, Vassar College

PAUL FLEURY, Yale University

ANDREA M. GHEZ, University of California, Los Angeles (until June 30, 2010)

PETER F. GREEN, University of Michigan

LAURA H. GREENE, University of Illinois, Urbana-Champaign

MARTHA P. HAYNES, Cornell University

JOSEPH HEZIR, EOP Group, Inc.

MARC A. KASTNER, Massachusetts Institute of Technology (Chair until June 30, 2010)

MARK B. KETCHEN, IBM Thomas J. Watson Research Center

JOSEPH LYKKEN, Fermi National Accelerator Laboratory

PIERRE MEYSTRE, University of Arizona

HOMER A. NEAL, University of Michigan

MONICA OLVERA de la CRUZ, Northwestern University

JOSE N. ONUCHIC, University of California, San Diego

LISA RANDALL, Harvard University

CHARLES V. SHANK, Janelia Farm, Howard Hughes Medical Institute (until June 30, 2010)

MICHAEL S. TURNER, University of Chicago

MICHAEL C.F. WIESCHER, University of Notre Dame

Staff

DONALD C. SHAPERO, Director

MICHAEL H. MOLONEY, Associate Director (until March 30, 2010)

SPACE STUDIES BOARD

CHARLES F. KENNEL, Scripps Institution of Oceanography at the University of California, San Diego, Chair

A. THOMAS YOUNG, Lockheed Martin Corporation (retired), Vice Chair

DANIEL N. BAKER, University of Colorado, Boulder (until June 30, 2010)

STEVEN J. BATTEL, Battel Engineering,

CHARLES L. BENNETT, Johns Hopkins University (until June 30, 2010)

YVONNE C. BRILL, Aerospace Consultant

ELIZABETH R. CANTWELL, Oak Ridge National Laboratory

ANDREW B. CHRISTENSEN, Dixie State College/Aerospace Corporation

ALAN DRESSLER, The Observatories of the Carnegie Institution

JACK D. FELLOWS, University Corporation for Atmospheric Research

HEIDI B. HAMMEL, Space Science Institute

FIONA A. HARRISON, California Institute of Technology

ANTHONY C. JANETOS, Pacific Northwest National Laboratory

JOAN JOHNSON-FREESE, Naval War College

KLAUS KEIL, University of Hawaii (until June 30, 2010)

MOLLY K. MACAULEY, Resources for the Future

BERRIEN MOORE III, Climate Central (until June 30, 2010)

JOHN F. MUSTARD, Brown University

ROBERT T. PAPPALARDO, Jet Propulsion Laboratory, California Institute of Technology

JAMES PAWELCZYK, Pennsylvania State University

SOROOSH SOROOSHIAN, University of California, Irvine

DAVID N. SPERGEL, Princeton University

JOAN VERNIKOS, Thirdage LLC

JOSEPH F. VEVERKA, Cornell University (until June 30, 2010)

WARREN M. WASHINGTON, National Center for Atmospheric Research

CHARLES E. WOODWARD, University of Minnesota

THOMAS H. ZURBUCHEN, University of Michigan

ELLEN G. ZWEIBEL, University of Wisconsin (until June 30, 2010)

Staff

MICHAEL H. MOLONEY, Director (from April 2010)

RICHARD E. ROWBERG, Interim Director (from March 2009 through March 2010)

MARCIA S. SMITH, Director (through February 2009)

BRANT L. SPONBERG, Associate Director (until December 2009)