Senator Bob Corker, Chairman, Senate Foreign Relations Committee Senator Ben Cardin, Ranking Member, Senate Foreign Relations Committee Representative Ed Royce, Chairman, House Foreign Affairs Committee Representative Eliot Engel, Ranking Member, House Foreign Affairs Committee

Dear Senators Corker and Cardin, and Representatives Royce and Engel,

The United States Congress has momentous responsibilities with regard to the nuclear agreement with Iran. As scientists who understand the physics and technology of nuclear power, of nuclear explosives, and of long-range missiles; and who collectively bring experience with nuclear nonproliferation, we would like to provide you with our perspective on the wisest path forward.

Recent statements by the United Kingdom, France, Germany, the European Union, and Iran make clear that renegotiation of the Joint Comprehensive Plan of Action (JCPoA) is an unrealistic objective. Since the JCPoA imposes strict restrictions and strong verification on Iran's nuclear program, Congress should act to ensure that the United States remains a party to the agreement. Along with assuring the continuation of the agreement, this will allow the United States to influence its implementation, including inspections at military installations, through its position on the Joint Commission.

The JCPoA does not cover non-nuclear activities by Iran; any such issues could be addressed separately. For example, recent reports suggest that Iran might be open to mutually respectful negotiations addressing limits to Iran's missile program. We encourage you to recommend that the United States pursue this potential opportunity.

President Trump has expressed concerns about the long-term implications of the JCPoA for Iran's nuclear program. The severe restrictions on Iran's stockpile of low-enriched uranium remain in place through 2030, and continuous surveillance of Iran's centrifuge production through 2035. Surveillance of uranium mines and mills remains through 2040. Thereafter, Iran returns fully to International Atomic Energy Agency (IAEA) safeguards under the "Additional Protocol," the strongest set of generally applicable safeguards implemented by the IAEA. In contrast, during most of its prior history, Iran's nuclear program was subject only to the minimum level of IAEA safeguards.

There are additional measures that would make it more difficult for any country with enrichment facilities to produce secretly material for weapons. First, it would be valuable to have stronger verification procedures at uranium enrichment plants worldwide. In particular, the IAEA should implement real-time verification at large-scale uranium enrichment plants in non-nuclear weapon states where the IAEA is unable to reach a "Broader Conclusion" of the absence of undeclared nuclear materials and activities.

Second, multi-national control of uranium enrichment plants—such as a strengthened version of the arrangements within the European company URENCO—could provide an extra layer of security against their misuse to produce material for nuclear weapons, due to oversight by officials of multiple nationalities. Congress should recommend that the Executive Branch, in collaboration with all other member states of the IAEA and the IAEA itself, work to strengthen uranium enrichment plant safeguards worldwide, and implement multi-national control of uranium enrichment capabilities. Continuation of the JCPoA is necessary to provide the time needed to develop and implement these initiatives.

We hope that you will take into account the perspectives presented here. We stand ready to discuss these matters in more detail with you at your request.

Sincerely,

Richard L. Garwin

Member of the National Academies of Sciences, Engineering and Medicine National Medal of Science (2002)
Presidential Medal of Freedom (2016)

Robert J. Goldston

Professor, Astrophysical Sciences, Princeton University

Rush Holt

Chief Executive Officer, American Association for the Advancement of Science

R. Scott Kemp

Associate Professor, Nuclear Science and Engineering, MIT Director, MIT Laboratory for Nuclear Security and Policy

Frank von Hippel

Senior Research Physicist and Professor of Public and International Affairs, Emeritus, Princeton University

(Affiliations for identification only)

All communications should be addressed to Robert Goldston at rjg@Princeton.edu

Additional signatories on the following pages:

Also signed by:

Elihu Abrahams

Department of Physics and Astronomy, UCLA Member of the National Academy of Sciences

James Acton

Co-director, Nuclear Policy Program, Carnegie Endowment for International Peace

Stephen L. Adler

Professor Emeritus, School of Natural Sciences, Institute for Advanced Study Member of the National Academy of Sciences

Peter Agre

Bloomberg Distinguished Professor and Director, Johns Hopkins Malaria Research Institute, Johns Hopkins Bloomberg School of Public Health Member of the National Academy of Sciences Nobel Prize (Chemistry, 2003)

Barry C. Barish

Linde Professor of Physics, Emeritus, California Institute of Technology Member of the National Academy of Sciences Nobel Prize (Physics, 2017)

R. Stephen Berry

James Franck Distinguished Service Professor Emeritus, Department of Chemistry, The University of Chicago Member of the National Academy of Sciences

William Bialek

John Archibald Wheeler/Battelle Professor in Physics, Princeton University Visiting Presidential Professor of Physics, The Graduate Center, City University of New York

Member of the National Academy of Sciences

Steven M. Block

S.W. Ascherman Professor of Sciences, Stanford University Member of the National Academy of Sciences

William F. Brinkman

Senior Physicist, Physics Department, Princeton University Vice President of Research, retired, Bell Laboratories Member of the National Academy of Sciences

Matthew Bunn

Professor of Practice, John F. Kennedy School of Government, Harvard University

Claude R. Canizares

Rossi Professor of Physics, MIT Member of the National Academy of Sciences

Roberto Car

Ralph W. Dornte '31 Professor in Chemistry, Princeton University Member of the National Academy of Sciences

Moses H. Chan

Evan Pugh University Professor of Physics, Penn State University Member of the National Academy of Sciences

Christopher F. Chyba

Professor of Astrophysical Sciences and International Affairs, Princeton University

George W. Clark

Breene M. Kerr Professor of Physics, Emeritus, MIT Member of the National Academy of Sciences

Morrel H. Cohen

Department of Physics and Astronomy, Rutgers University Department of Chemistry and Chemical Biology, Princeton University Member of the National Academy of Sciences

Leon N. Cooper

Thomas J. Watson, Professor of Science, Brown University Member of the National Academy of Sciences Nobel Prize (Physics, 1972)

Susan N. Coppersmith

Robert E. Fassnacht Professor of Physics, University of Wisconsin at Madison Member of the National Academy of Sciences

Pierce S. Corden

Former Director, Office of International Security Negotiations, Department of State

John M. Cornwall

Distinguished Professor of Physics, Emeritus, UCLA

Stanley Deser

Senior Research Associate, California Institute of Technology Member of the National Academy of Sciences

Bruce T. Draine

Professor of Astrophysical Sciences, Princeton University Member of the National Academy of Sciences

Freeman Dyson

Professor Emeritus, Institute for Advanced Study Member of the National Academy of Sciences Enrico Fermi Award (1995)

James P. Eisenstein

Roshek Professor of Physics and Applied Physics, California Institute of Technology Member of the National Academy of Sciences

Harold A. Feiveson

Program on Science and Global Security, Princeton University

Steve Fetter

Professor, School of Public Policy, University of Maryland

Daniel S. Fisher

Professor of Applied Physics, Stanford University Member of the National Academy of Sciences

Eduardo Fradkin

Donald Biggar Willett Professor of Physics and Director, Institute for Condensed Matter Theory, University of Illinois at Urbana-Champaign Member of the National Academy of Sciences

Jerome I. Friedman

Institute Professor and Professor of Physics Emeritus, MIT Member of the National Academy of Sciences Nobel Prize (Physics, 1990)

Mary K. Gaillard

Professor of the Graduate School, University of California at Berkeley Member of the National Academy of Sciences

Howard M. Georgi

Mallinckrodt Professor of Physics, Harvard University Member of the National Academy of Sciences

Subrata Ghoshroy

Research Affiliate, Program in Science, Technology, and Society, MIT

Sheldon Lee Glashow

Arthur G.B. Metcalf Professor of Mathematics and the Sciences, Boston University Member of the National Academy of Sciences Nobel Prize (Physics, 1979)

Roy Glauber

Mallinckrodt Professor of Physics Emeritus, Harvard University Member of the National Academy of Sciences Nobel Prize (Physics, 2005)

Allen M. Goldman

Regents Professor of Physics, University of Minnesota Member of the National Academy of Sciences

Kurt Gottfried

Professor of Physics, Emeritus, Cornell University

Lisbeth Gronlund

Senior Scientist and Co-Director, Global Security Program, Union of Concerned Scientists

David Gross

Chancellor's Chair Professor of Theoretical Physics, University of California at Santa Barbara

Member of the National Academy of Sciences Nobel Prize (Physics, 2004)

Stephen E. Harris

Professor of Electrical Engineering and Applied Physics, Emeritus, Stanford University Member of the National Academies of Sciences and Engineering

Siegfried S. Hecker

Center for International Security and Cooperation, Stanford University Former Director of the Los Alamos National Laboratory Member of the National Academy of Engineering

Martin E. Hellman

Professor Emeritus of Electrical Engineering, Stanford University Member of the National Academy of Engineering

Dudley Herschbach

Professor of Physics and Chemistry, Texas A&M University at College Station Member of the National Academy of Sciences National Medal of Science (1991) Nobel Prize (Chemistry, 1986)

Roald Hoffmann

Frank H.T. Rhodes Professor of Humane Letters, Emeritus, Cornell University Member of the National Academy of Sciences National Medal of Science (1983) Nobel Prize (Chemistry, 1981)

Pierre C. Hohenberg

Professor Emeritus of Physics, New York University Member of the National Academy of Sciences

John P. Holdren

Science and Technology Advisor to President Obama (2009–2017)
Professor, Kennedy School of Government and Department of Earth and Planetary Sciences, Harvard University
Member of the National Academy of Sciences

Raymond Jeanloz

Professor of Earth and Planetary Sciences and Astronomy, University of California at Berkeley

Chair, National Academy of Sciences Committee on International Security and Arms Control

Member of the National Academy of Sciences

Steven Kivelson

Prabhu Goel Family Professor of Physics, Stanford University Member of the National Academy of Sciences

Daniel Kleppner

Lester Wolfe Professor of Physics Emeritus, MIT Member of the National Academy of Sciences National Medal of Science (2006)

Lawrence M. Krauss

Foundation Professor, School of Earth and Space Exploration, Arizona State University

Don Q. Lamb

Robert A. Millikan Distinguished Service Professor Emeritus, Department of Astronomy & Astrophysics and Harris School of Public Policy, University of Chicago

Frederick K. Lamb

Research Professor of Physics; Core Faculty Member, Program in Arms Control & Domestic and International Security; Brand and Monica Fortner Endowed Chair of Theoretical Astrophysics Emeritus; Professor of Physics and Professor of Astronomy Emeritus, University of Illinois at Urbana-Champaign

Neal Lane

Senior Fellow, Baker Institute for Public Policy; University Professor Emeritus, and Professor of Physics and Astronomy Emeritus, Rice University National Academy of Sciences Public Welfare Medal (2009)

David M. Lee

Distinguished Professor of Physics and Astronomy, Texas A&M University at College Station

Member of the National Academy of Sciences Nobel Laureate (Physics, 1996)

Anthony J. Leggett

Professor of Physics, University of Illinois Member of the National Academy of Sciences Nobel Prize (Physics, 2003)

Elliott Lieb

Higgins Professor of Physics and Professor of Mathematics, Princeton University Member of the National Academy of Sciences

Gregory A. Loew

Emeritus Deputy Director and Professor, SLAC National Accelerator Laboratory

Edwin Lyman

Senior Scientist, Global Security Program, Union of Concerned Scientists

John C. Mather

Member of the National Academy of Sciences Nobel Prize (Physics, 2006)

M. Brian Maple

Distinguished Professor of Physics, University of California at San Diego Member of the National Academy of Sciences

Nergis Mavalvala

Professor of Physics, MIT Member of the National Academy of Sciences

N. David Mermin

Horace White Professor of Physics Emeritus, Cornell University Member of the National Academy of Sciences

Marvin Miller

Science, Technology, and Society Program, MIT

William E. Moerner

Professor of Chemistry and Applied Physics, Stanford University Member of the National Academy of Sciences Nobel Laureate (Chemistry, 2014)

Norman P. Neureiter

Senior Advisor, International, American Association for the Advancement of Science National Academy of Sciences Public Welfare Medal (2008)

David Nygren

Presidential Distinguished Professor, University of Texas at Arlington Member of the National Academy of Sciences

John A. Parmentola

Former Director for Research and Laboratory Management, U.S. Army Former Senior Vice President for Energy and Advanced Concepts, General Atomics

C. Kumar N. Patel

Professor Emeritus, Department of Physics and Astronomy, UCLA Member of the National Academies of Sciences and Engineering

Claudio Pellegrini

Distinguished Professor of Physics and Astronomy, Emeritus, UCLA Member of the National Academy of Sciences

William D. Phillips

Professor of Physics, University of Maryland at College Park Member of the National Academy of Sciences Nobel Prize (Physics, 1997)

David Pines

Distinguished Research Professor of Physics, University of California at Davis; Research Professor of Physics, University of Illinois at Urbana-Champaign; Founder-in-Residence, Santa Fe Institute

Member of the National Academy of Sciences

Theodore A. Postol

Professor Emeritus of Science, Technology, and National Security Policy, MIT

David E. Pritchard

Cecil and Ida Green Professor of Physics, MIT Member of the National Academy of Sciences

Helen R. Quinn

Professor Emerita, Particle Physics and Astrophysics, Stanford University Member of the National Academy of Sciences

John D. Reppy

John L. Wetherill Professor Emeritus of Physics, Cornell University Member of the National Academy of Sciences

Burton Richter

Paul Pigott Professor of Physical Sciences Emeritus, Stanford University Member of the National Academy of Sciences National Medal of Science (2014) Nobel Laureate (Physics, 1976)

Myriam P. Sarachik

Distinguished Professor of Physics, City College of New York, City University of New York

Member of the National Academy of Sciences

John H. Schwarz

Harold Brown Professor of Theoretical Physics Emeritus, California Institute of Technology

Member of the National Academy of Sciences

Roy F. Schwitters

S. W. Richardson Regents Professor of Physics, The University of Texas at Austin

Frank Sciulli

Pupin Professor of Physics Emeritus, Columbia University Member of the National Academy of Sciences

Stephen Shenker

Richard Herschel Weiland Professor of Physics, Stanford University Member of the National Academy of Sciences

Melvyn Shochet

Kersten Distinguished Service Professor of Physics, University of Chicago Member of the National Academy of Sciences

Joseph H. Taylor, Jr.

James S. McDonnell Distinguished University Professor of Physics, Emeritus, Princeton University

Member of the National Academy of Sciences Nobel Prize (Physics, 1993)

Max Tegmark

Professor of Physics, Massachusetts Institute of Technology

Kip S. Thorne

Feynman Professor of Theoretical Physics Emeritus, California Institute of Technology Member of the National Academy of Sciences Nobel Prize (Physics, 2017)

Maury Tigner

Director Emeritus, Laboratory of Nuclear Studies, Cornell University Member of the National Academy of Sciences

Scott Tremaine

Professor, Institute for Advanced Study, Princeton Member of the National Academy of Sciences

George H. Trilling

Professor of Physics Emeritus, University of California at Berkeley Member of the National Academy of Sciences

Rainer Weiss

Professor of Physics Emeritus, MIT Member of the National Academy of Sciences Nobel Prize (Physics, 2017)

Ray J. Weymann

Director Emeritus, Carnegie Observatories, Carnegie Institution for Science Member of the National Academy of Sciences

David J. Wineland

Member of the National Academy of Sciences National Medal of Science (2007) Nobel Prize (Physics, 2012)

David Wright

Senior Scientist and Co-Director, Global Security Program, Union of Concerned Scientists

(Affiliations for identification only)