

BY: Senator PALUMBO

HONORING Dr. Dennis P. Sullivan upon the occasion of his designation as recipient of the 2022 Abel Prize for Mathematics by the Norwegian Academy of Science and Letters

WHEREAS, It is the sense of this Legislative Body that those who enhance the quality of life in their community and have shown a long and sustained commitment to the maintenance of high standards in their profession, certainly have earned the recognition and applause of all the citizens of this great Empire State; and

WHEREAS, Attendant to such concern, and in full accord with its long-standing traditions, this Legislative Body is justly proud to honor Dr. Dennis P. Sullivan upon the occasion of his designation as recipient of the 2022 Abel Prize for Mathematics by the Norwegian Academy of Science and Letters; His Majesty King Harald will officially present the Prize at a ceremony in Oslo, Norway, on Tuesday, May 24, 2022; and

WHEREAS, The Abel Prize is named after Niels Henrik Abel, Norway's greatest mathematician, who left lasting marks on the mathematical world; his mathematics have served as a base for a number of major technological breakthroughs, including the development of the internet; it was established by the Norwegian Parliament (The Storting) in 2002, on the 200th Anniversary of Abel's birth; and

WHEREAS, Professor Dennis P. Sullivan earned this prestigious award for his groundbreaking contributions to topology in its broadest sense, and in particular its algebraic, geometric and dynamical aspects; he will be awarded 7.5 million Norwegian kroner, nearly US \$860,000, funded by the Norwegian government; and

WHEREAS, Dr. Dennis Parnell Sullivan is a distinguished professor in the College of Arts and Sciences Department of Mathematics, and the Albert Einstein Chair in Science (Mathematics) at the CUNY Graduate Center; and

WHEREAS, This auspicious prize honors brilliant mathematicians who inspire curiosity and drive imagination; Professor Dennis P. Sullivan has made outstanding scientific contributions to the field of mathematics throughout his illustrious career, and has had a positive impact on the students he has mentored; and

WHEREAS, Throughout his decades-long profession as a mathematician, Dr. Dennis P. Sullivan has found deep connections between many areas of mathematics; one of his most important breakthroughs includes a new way of understanding rational homotopy theory, a subfield of algebraic topology; topology has been invaluable throughout mathematics and beyond, with significant applications in fields ranging from physics to economics to data science; and

WHEREAS, In the late 1970s, Professor Dennis P. Sullivan began to work on problems in dynamical systems, the study of a point moving in a geometrical space, a field usually considered far removed from algebraic topology; the ability of computers to iterate functions beyond what was humanly possible had created an explosion of interest in this field, known popularly as "chaos theory," since many of the dynamical systems exhibited chaotic behavior; among his most important contributions to this field is the proof of the universality law for period doubling for a large class of dynamical systems; and

WHEREAS, One of the most accomplished mathematicians of our age, Dr. Dennis P. Sullivan approaches mathematics with the enthusiasm and curiosity of a child first realizing the wonders of this incredible field; he has proudly shared his passion for mathematics with many generations of both students and colleagues; and

WHEREAS, Among Professor Dennis P. Sullivan's significant results in topology is his proof of the Adams conjecture, and in dynamical systems, he proved that rational maps have no wandering domains, solving a 60-year-old conjecture; his insistent probing for fundamental understanding and his capacity to see analogues between diverse areas of mathematics, and build bridges between them, has forever changed the field; and

WHEREAS, Professor Dennis P. Sullivan has been an esteemed member of the Graduate Center's faculty for more than 40 years; during that time, he has not only solved problems, he has opened new avenues of research that scholars will explore for years to come; and

WHEREAS, In 1999, Dr. Dennis P. Sullivan and Moira Chas, associate professor in the Department of Mathematics, discovered a new invariant for a manifold based on loops, creating the field of string topology, an area that has grown rapidly in recent years; and

WHEREAS, Dennis P. Sullivan received his PhD in 1966 from Princeton University; that same year, he was awarded a NATO Fellowship at Warwick University in England, after which he earned a Miller Fellowship at the University of California at Berkeley from 1967-1969 and went to the Massachusetts Institute of Technology as The Sloan Fellow of Mathematics from 1969-1973; and

WHEREAS, He then spent the 1973-1974 academic year in France as professeur associe at the University of Paris-Orsay and in 1974 became a permanent professor at the Institut des Hautes Etudes Scientifiques; and

WHEREAS, In 1981, he was appointed to the Albert Einstein Chair in Science (Mathematics) at the CUNY Graduate Center, a role that continues to this day, and worked jointly with the Institut des Hautes Etudes Scientifiques until 1996 when he joined the faculty of the Department of Mathematics at Stony Brook University; and

WHEREAS, Professor Dennis P. Sullivan was elected as a member of the United States National Academy of Sciences in 1983, corresponding member

of the Brazilian National Academy of Sciences that same year, member of the New York Academy of Sciences in 1984, fellow of the American Academy of Arts and Sciences in 1991, corresponding member of the Irish Royal Society in 2012, and honorary member of the London Mathematical Society in 2013; furthermore, he served as vice president of the American Mathematical Society from 1990 until 1993; and

WHEREAS, The recipient of numerous awards and accolades, Dr. Dennis P. Sullivan received the 1970 Oswald Veblen Prize in Geometry, the 1981 Elie Cartan Prize in Geometry, the 1994 King Faisal International Prize for Science, the 1996 Gold Medal of the Brazilian Academy of Sciences, the 2004 United States National Medal of Science, the 2006 AMS Steele Prize for Lifetime Achievement, the 2010 Wolf Prize in Mathematics, and the 2014 Balzan Prize for Mathematics; and

WHEREAS, It is the custom of this Legislative Body that when individuals of such noble aims and accomplishments are brought to our attention, they should be celebrated and recognized by all the citizens of this great Empire State; now, therefore, be it

RESOLVED, That this Legislative Body pause in its deliberations to honor Dr. Dennis P. Sullivan upon the occasion of his designation as recipient of the 2022 Abel Prize for Mathematics by the Norwegian Academy of Science and Letters; and be it further

RESOLVED, That a copy of this Resolution, suitably engrossed, be transmitted to Dr. Dennis P. Sullivan.