

## 2023-J1854

Senate Resolution No. 1854

BY: Senator STEWART-COUSINS

COMMENDING Dr. Louis E. Brus upon the occasion of his designation as recipient of the Nobel Prize in Chemistry

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 commend Dr. Louis E. Brus upon the occasion of his designation as recipient of the Nobel Prize in Chemistry on Sunday, December 10, 2023; and

WHEREAS, Alfred Nobel believed that people are capable of helping to improve society through knowledge, science, and humanism, so, as a result, he created the Nobel Prize to reward the discoveries that have conferred the greatest benefit to humankind; and

WHEREAS, Since 1901, the Nobel Prize has been awarded in the field of physics, chemistry, physiology or medicine, literature, and peace, with a memorial prize in economic sciences being added in 1968; and

WHEREAS, Dr. Louis E. Brus, following time at Rice University in Houston, Texas, continued to pursue post-graduate research; with an early interest in chemistry, he began his doctoral studies at Columbia University in New York, where he diligently worked on his thesis alongside mentor Richard Bersohn on the photodissociation of sodium iodide vapor; and

WHEREAS, After receiving his Doctorate in Physical Chemistry in 1969, Dr. Louis E. Brus entered the Navy as a lieutenant and served as a scientific staff officer at the U.S. Naval Research Laboratory in Washington D.C.; he and his colleagues studied which gases and reactions produced the best conditions for the use of infrared chemical lasers; and

WHEREAS, After leaving to work at the company AT&T Bell Laboratories, Dr. Louis E. Brus' focus shifted to gaining a fundamental understanding of energy flows in solids, specifically, how excited electronic energy becomes vibrational and heat energy over time; he worked initially on the electronic relaxation dynamics of small molecules trapped in rare gas matrices near 4 degrees K, then developed time resolved Raman spectroscopy, and this led to an interest in colloidal metallic and semiconducting nanocrystals; and

WHEREAS, The metallic nanocrystal research led to single molecule SERS and photocatalysis on silver particles; the semiconducting nanocrystal work led to quantum size effects and colloidal core/shell  $\cdot$  chemical synthesis; and

WHEREAS, The work on colloidal semiconductor nanocrystals, or quantum dots, that led to his being recognized as one of the leading researchers in the field of nanoscience began in the early 1980s when he began studying liquids at room temperature; a key discovery came in

1983, when he noticed how conductivity changed with the particle size of materials; and

WHEREAS, Dr. Louis E. Brus returned to Columbia University as a professor in 1996, where he still does important work today; here, he explored optical properties and Rayleigh scattering of single carbon nanotubes, and this led to optical characterization of charge transfer and Raman scattering by molecules adsorbed on few layer graphenes; and

WHEREAS, Most recently, Dr. Louis E. Brus explored the liquid-like relaxation dynamics of lead halide perovskite crystals at room temperature, and is driven to understand the behavior of electrons; and

WHEREAS, The recipient of numerous awards and accolades for his fundamental research contributions, Dr. Louis E. Brus has been recognized in recent years with the Irving Langmuir Prize in Chemical Physics from the American Physical Society in 2001, election to the U.S. National Academy of Sciences in 2004, and the 2005 Chemistry of Materials Prize from the American Chemical Society; now, most notably, Dr. Louis E. Brus has justly received the internationally-esteemed Nobel Prize in Chemistry; 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 commend Dr. Louis E. Brus upon the occasion of his designation as recipient of the Nobel Prize in Chemistry; and be it further

RESOLVED, That a copy of this Resolution, suitably engrossed, be

transmitted to Dr. Louis E. Brus.