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LRB103 28142 ECR 54521 r

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SENATE RESOLUTION

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WHEREAS, The members of the Illinois Senate are saddened to learn of the death of Nick Holonyak Jr., Ph.D., who passed away on September 18, 2022; and

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WHEREAS, Nick Holonyak was born in Zeigler on November 3, 1928; he worked on the Illinois Central Railroad before attending college; he studied electrical engineering, obtaining his bachelor's, master's, and doctoral degrees from the University of Illinois at Urbana-Champaign; while earning his degrees, he studied under two-time Nobel Laureate John Bardeen, who selected him for a Texas Instruments fellowship with Gordon Teal in 1953; and

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WHEREAS, Nick Holonyak went to work for Bell Labs with John Moll on a number of silicon devices, including transistors; he continued to work in solid state science and was employed by the U.S. Army Signal Corps and General Electric; on October 9, 1962, he demonstrated the first visible-light-emitting diode at General Electric through creating crystals of gallium arsenide phosphide to make an LED emit visible red light; his work led to the development of the first practical visible-spectrum LED, which is now commonly used worldwide in light bulbs, device displays, and lasers; and

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1 WHEREAS, Nick Holonyak returned to the University of
2 Illinois (U of I) as a professor in 1963; he and his students
3 demonstrated the first quantum-well laser in 1977, which is
4 now used in fiber optics, CD and DVD players, and medical
5 diagnostic devices; more recently, he developed a technique to
6 bend light within gallium arsenide chips, a development which
7 allows computer chips to transmit information by light rather
8 than electricity; with fellow U of I professor Milton Feng, he
9 also developed the transistor laser, a transistor with both
10 light and electric outputs that could enable next-generation,
11 high-speed communications technologies; he was named the John
12 Bardeen Endowed Chair in Electrical and Computer Engineering
13 and Physics at the U of I in 1993; he later retired from his
14 position as a faculty member in 2013; and

15 WHEREAS, Nick Holonyak was the author of two scientific
16 books, Semiconductor Controlled Rectifiers in 1964 and
17 Physical Properties of Semiconductors in 1989; he also held 41
18 patents; and

19 WHEREAS, Nick Holonyak was a member of the National
20 Academy of Engineering, the National Academy of Sciences, and
21 the National Academy of Inventors; he was a fellow of the
22 American Academy of Arts and Sciences, the International
23 Electrical and Electronic Engineering Society, the American

1 Physical Society, and the Optical Society of America (OSA),
2 which became Optica; he was also a foreign member of the
3 Russian Academy of Sciences; and

4 WHEREAS, Nick Holonyak received numerous awards for his
5 contributions to science, including OSA's Charles Hard Townes
6 Award in 1992, the National Academy of Sciences' Award for the
7 Industrial Application of Science in 1993, the Japan Prize in
8 1995, the Frederic Ives Medal/Jarus W. Quinn Prize in 2001,
9 the Institute of Electrical and Electronics Engineers' Medal
10 of Honor in 2003, Russia's Global Energy Prize in 2003, the
11 Lemelson-MIT Prize in 2004, the National Academy of
12 Engineering's Draper Prize in 2015, and the Queen Elizabeth
13 Prize for Engineering in 2021; he was honored by President
14 George H. W. Bush with the National Medal of Science in 1990
15 and by President George W. Bush with the National Medal of
16 Technology and Innovation in 2002; he became the namesake of
17 the Nick Holonyak, Jr. Award by Optica in 1997, which is
18 presented to an individual who has made significant
19 contributions to optics based on semiconductor-based optical
20 devices and materials, including basic science and
21 technological applications; and

22 WHEREAS, Nick Holonyak was a humble innovator who was
23 known for his research, his excellence in mentorship, and his
24 dedication to his students; and

1 WHEREAS, Nick Holonyak is survived by his wife of 60
2 years, Katherine; therefore, be it

3 RESOLVED, BY THE SENATE OF THE ONE HUNDRED THIRD GENERAL
4 ASSEMBLY OF THE STATE OF ILLINOIS, that we mourn the passing of
5 Nick Holonyak Jr., Ph.D., and extend our sincere condolences
6 to his family, friends, and all who knew and loved him; and be
7 it further

8 RESOLVED, That a suitable copy of this resolution be
9 presented to the family of Nick Holonyak as an expression of
10 our deepest sympathy.