NSF BIOGRAPHICAL SKETCH

NAME: Singer, Kenneth

POSITION TITLE & INSTITUTION: Ambrose Swasey Professor of Physics, Case Western Reserve University

(a) PROFESSIONAL PREPARATION

INSTITUTION	LOCATION	MAJOR / AREA OF STUDY	DEGREE (if applicable)	YEAR YYYY
The Ohio State University	Columbus, OH	Physics	BS	1975
University of Pennsylvania	Philadelphia, PA	Physics	PHD	1981
University of Pennsylvania	Philadelphia, PA	Physics	Postdoctoral Fellow	1981 - 1982

(b) APPOINTMENTS

2008 - present	Ambrose Swasey Professor of Physics, Case Western Reserve University
2012 - present	Founder, Chief Innovation Officer, Board Chair, Folio Photonics Inc
2011 - present	Founding Faculty Director, MORE Center, Case Western Reserve University
2008 - present	Professor of Macromolecular Science and Engineering, Case Western Reserve University
1998 - 2013	Founding Director, Engineering Physics Program, Case Western Reserve University
1995 - 2008	Professor of Physics, Case Western Reserve University
1993 - 2005	Associate Chair, Department of Physics, Case Western Reserve University
2002 - 2002	Visiting Scientist, Liquid Crystal Institute, Kent State University
1990 - 1993	Warren E. Rupp Associate Professor of Physics, Case Western Reserve University
1989 - 1990	Distinguished Member of Technical Staff, AT&T Bell Laboratories
1982 - 1989	Member of Technical Staff, AT&T Bell Laboratories

(c) PRODUCTS

Products Most Closely Related to the Proposed Project

1. Loser S, Valle B, Luck K, Song C, Ogien G, Hersam M, Singer K, Marks T. High-Efficiency Inverted Polymer Photovoltaics via Spectrally Tuned Absorption Enhancement. Advanced Energy Materials. 2014 October; 4(14):1301938-. Available from: http://doi.wiley.com/10.1002/aenm.201301938 DOI: 10.1002/aenm.201301938
2. Kuzyk M, Singer K, Stegeman G. Theory of Molecular Nonlinear Optics. Advances in Optics and Photonics. 2013 March 26; 5(1):4-. Available from: https://www.osapublishing.org/aop/abstract.cfm?uri=aop-5-1-4 DOI: 10.1364/AOP.5.000004
3. Liu B., Rai P., Grezmak J., Twieg R.J., Singer K.D.. Coupling of exciton-polaritons in low-Q coupled microcavities beyond the rotating wave approximation. Physical Review B - Condensed Matter and Materials Physics. 2015; 92(15). Available from: http://www.scopus.com/inward/record.url?eid=2-s2.0-84944790616&partnerID=MN8TOARS DOI: 10.1103/PhysRevB.92.155301
4. Liu B, Soe C, Stoumpos CC., Nie W, Tsai H, Lim K, Mohite AD., Kanatzidis MG., Marks TJ., Singer KD.. Optical Properties and Modeling of 2D Perovskite Solar Cells.". Solar RLL. 2017; 1. DOI: 10.1002/solr.201700062

5. Liu B, Crescmanno M, Twieg RJ, Singer KD. Dispersion of third-harmonic generation in organic cavity polaritons. Advanced Optical Materials. 2019; :1801682. DOI: 10.1002/adom.201801682

Other Significant Products, Whether or Not Related to the Proposed Project

1. Percec V, Glodde M, Bera T, Miura Y, Shiyanovskaya I, Singer K, Balagurusamy V, Heiney P, Schnell I, Rapp A, Spiess H, Hudson S, Duan H. Self-organization of supramolecular helical dendrimers into complex electronic materials. Nature. 2002 September 26; 419(6905):384-387. Available from: http://www.nature.com/articles/nature01072 DOI: 10.1038/nature01072
2. Crescimanno M, Mao G, Andrews J, Singer K, Baer E, Hiltner A, Song H, Comeau K, Shakya B, Bishop A, Livingston R. Role of group velocity delay in Faraday rotation in a multilayer polymer lattice. Journal of the Optical Society of America B. 2012 April 24; 29(5):1038-. Available from: https://www.osapublishing.org/abstract.cfm?URI=josab-29-5-1038 DOI: 10.1364/JOSAB.29.001038
3. Crescimanno M., Oder T.N., Andrews J.H., Zhou C., Petrus J.B., Merlo C., Bagheri C., Hetzel C., Tancabel J., Singer K.D., Baer E.. Chromatic control in coextruded layered polymer microlenses. Optics Express. 2014; 22(24):29668-29678. Available from: http://www.scopus.com/inward/record.url?eid=2-s2.0-84914689690&partnerID=MN8TOARS DOI: 10.1364/OE.22.029668
4. Andrews J.H., Khaydarov J.D.V., Singer K.D.. Contribution of the 2¹Ag state to the third-order optical nonlinearity in a squaraine dye. Optics Letters. 1994; 19(13):984-986. Available from: http://www.scopus.com/inward/record.url?eid=2-s2.0-0028479461&partnerID=MN8TOARS DOI: 10.1364/OL.19.000984
5. Singer KD, Kuzyk MG, Sohn JE. Second-order nonlinear-optical processes in orientationally ordered materials: relationship between molecular and macroscopic properties. J. Opt. Soc. Am. B. 1987; 4:968.

(d) SYNERGISTIC ACTIVITIES

1. Active participant in high school research programs for underrepresented groups. Supervised several students from Hathaway Brown school, an independent girls' school. Rachel Myer: semifinalist 2010 Intel Science Talent Search, semifinalist 2010 Siemens Competition in Math Science and Technology, bronze medal International Sustainable World Project Olympiad in Energy, Engineering and Environment. Dora Huang: semifinalist 2008 Intel Science Talent Search, semifinalist 2008 Siemens Competition in Math Science and Technology, finalist 2008 Intel International Science and Engineering Fair (ISEF), first prize SPIE at ISEF. Elysa Chao: semifinalist 2004 Intel Science Talent Search, finalist 2004 Intel International Science and Engineering Fair (ISEF). Supervised 4 minority students from Cleveland School District.
2. Founding director of the Engineering Physics undergraduate degree program in the Case School of Engineering, ABET accredited in 2006. Developed the senior project research program seminar in the Physics Department. Frequent participant in summer undergraduate research programs.
3. Awards: 2020 Distinguished Faculty Research Award, CWRU, Fellow American Physical Society, Fellow Optical Society of America; Advisory boards: Great Lakes Energy Institute, Northeast Ohio Nano-Network, Co-Founder of the Advisory Committee for Joint Activities of the Optical Society of America and The American Chemical Society.