

## CURRICULUM VITAE: Timir Datta, Ph.D

### APPOINTMENTS:

09/1992- present Professor (Full), Physics & Astronomy Dept., USC, Columbia SC  
05/00-12/2004 Co-founder and Associate Director, USC Nanocenter,  
USC, Columbia, SC  
05/00-7/2000 Visiting Professor, Department of Electrical Engineering, University of Nebraska Lincoln.  
01/89-9/89 Visiting Research Professor, Department of Physics and NSF Superconductivity Sc. & Technology  
Center, University of Illinois, Urbana-Champaign, IL  
09/86-9/91 Associate Professor, Physics & Astronomy Dept, USC, Columbia, SC  
01/82-9/86 Assistant Professor, Physics & Astronomy Dept, USC, Columbia, SC  
08/81-12/81 Visiting Assistant Professor, Department of Physics, Tulane University  
06/79-7/81 NSF, Postdoctoral Research Associate, Department of Physics, The University of North Carolina,  
Chapel Hill.  
06/76 – 8/76, 6/77 – 8/77, & 6/78 – 8/78, NASA, Pre- doctoral Fellow. Jet Propulsion Laboratory, California  
Institute of Technology, Pasadena, CA.  
09/80-5/82 Graduate Student & Research Assistant, Department of Physics, Tulane University  
09/80-5/82 Instructor, Summer School, Science/Algebra, Roxbury Community College, Boston, Ma  
09/80-5/82 Graduate Student & Research Assistant, Department of Physics, Boston College.

### SYNERGISTIC ACTIVITIES:

- 1) **Team leader** superconductivity March '19 sorting for the American Physical Society.
- 2) **Chaired** over twenty sessions at the APS national and regional meetings.
- 3) **Organized and Chaired-**
  - (i) Over ten Public lectures at USC by Nobel laureates, including two in 2018 [ on 8 Feb '18 by Barry Barish, (CALTECH/LIGO) and on 23 March '18 by W.E. Morener (Stanford)]
  - (ii) Special Evening session on Hi-Tc Hg Based copper oxides, at the Materials and mechanisms of Superconductivity (MOS), Eugene, Or July 1993.
  - (iii) Woodstock-II, at APS March 1988 meeting in New Orleans. (Robert Pool, *Science* 8 April 1988. DOI: 10.1126/science.240.4849.146.) Chair–IOP press conference on 3-digit superconductors, APS, New Orleans, March 1988.
- 4) **Editor in chief**, Journal of Thermodynamics & catalysis, 2011-2017. Editor, Survey of Semiconductor Physics, 2<sup>nd</sup> ed Karl W. Boer, Wiley (2002)
- 5) **Editorial Board Member**: Review of Superconductivity, 1990-1992. And Journal of Superconductivity, 1995-1998.
- 6) **Recipient**: Best Paper (technical session) at the 19<sup>th</sup> Army Science Conference, Orlando, Florida (20-23 June, 1994) ;“Gold Key of the City of Columbia”, presented by the Mayor, Bob Coble, November 2009.

### PROFESSIONAL PREPARATION:

- Post-Doctoral (NSF) Research Associate: Advisor, Marvin Silver; Theory & Experiment, Physics & Astronomy Department, University of North Carolina at Chapel Hill, 1979–1981.
- Doctoral - Ph. D.: Advisor, A. M. Hermann; Experimental Condensed Mat. Tulane University, 1979.
- Pre-Doctoral (NASA) Research Associate: Supervisor, Robert Somoano; Experimental & transport theory, Jet Propulsion Lab, CALTECH, Pasadena, 1975-1978 (Part-time).
- Masters - M.S.: Advisor Gabor Kalman; Plasma Theory, Boston College, 1974.
- Undergraduate - B. Sc. Physics (Honors), Calcutta University, 1969.

### COLLABORATORS AND OTHER AFFILIATES:

John Perdew (Temple), Carmen Almason (Kent), John Woollam (Nebraska) David Tanner (U. of Florida), L. Ford (Tufts), R. Noufi (NREL), H. M. Ledbetter, (U of Colorado), Ray Tsu (U.NC), Don Gubser (NRL), Mike Osofsky (NRL).

### PhD. Doctoral Graduate Students completed (Total of 8):

Alfonso Bariantos, Carmen Almason, Javier Estrada, Holly Ning, Doug Kirven, Michael Bleiweiss, Anca Lungu, Lei Wang.

### Postdoctoral Scholars (Total of 3):

J Y Park, A. Chatterjee, Lei Wang

Postdoctoral Advisor: Marvin Silver (UNC Chapel Hill, Late)

Thesis Advisors:- Allen Hermann (PhD, Tulane, Retired), Gabor Kalman (MS- Boston College)

### **SELECTED PUBLICATIONS (T. Datta):**

- Leizhi Wang Ming Yin, B. Zhong, J. Jaroszynski, G. Mbamalu, **T. Datta**, "Quantum transport properties of monolayer graphene with antidot lattice" JAP19-AR-02396R1 (2019)
- Leizhi Wang, Ming Yin, Asif Khan, Sakib Muhtadi, Fatima Asif, Eun Sang Choi, **Timir Datta**, "Scattering and Quantum Effects in (Al,In)N/GaN Heterostructures for High-Power and High-Frequency Electronics, *Physical Review Applied*, (2018).
- Leizhi Wang, Ming Yin, Jan Jaroszynski, Ju-Hyun Park, Godwin Mbamalu, and **Timir Datta** "Geometric dependence of transport and universal behavior in three dimensional carbon nanostructures," *Appl. Phys. Lett.* 4963261(2016).
- Lei Wang, Ming Yin, Mohammed Abdi, and **Timir Datta** "Linear magnetoresistance in three-dimensional carbon nanostructure with periodic spherical voids" *Appl. Phys. Lett.* 107, 023103 (2015).
- **T. Datta**, "Laue: right or wrong?" *Physica Scripta* 90 (3), 038002 (2015).
- Leizhi Wang, Hua Wang, **Timir Datta**, Ming Yin, and Xingyou Tian "Distinct electrical effects of multi-walled carbon nanotubes in two composites" *J. Appl. Phys.* 116, 173708 (2014).
- Ray Tsu, **Timir Datta**, "Conductance and Wave Impedance of Electrons" *Prog. in Electromagnetics Res. Symp.*, Hangzhou, China (2008).
- MS Osofsky, RJ Soulen Jr, DU Gubser, **T Datta**, "Measurements of AC Loss In Second-Generation HTS Tapes in a DC Magnetic Field", *Advances in cryogenic engineering materials: Transactions of the ICMC*, Vol 54, p 502-508, AIP (2008).
- **T Datta**, "High temperature quantum hall condensation: evidence of quantum hall effect at 40 Kelvin", *Optics & Photonics* 2005, 593220-593220-12 (2005).
- **T Datta**, M Yin, A Dimofte, M Bleiweiss, A Lungu, J Amirzadeh, WE Sharp, "Tidal Effects on Gravity Experiments with a Balance," *Physical review letters* 91 (10), 109001 (2003).
- Z Iqbal, **T Datta**, D Kirven, A Lungu, JC Barry, FJ Owens, AG Rinzler, D Yang, Superconductivity above 130 K in the Hg-Pb-Ba-Ca-Cu-O system, *Physical Review B* 49 (17), 12322 (1994).
- FA Cotton, **T Datta**, L Labella, M Shang Stabilizing of the Ru 2 6+ core. Use of highly charged ligands such as sulfate and phosphate, *Inorganica chimica acta* 203 (1), 55-60 (1993).
- **T. Datta**, H. M. Ledbetter, C. E. Violet, et al., "Reentrant Softening in Perovskite-like Superconductors", *Phys. Rev. B*, 37, 7502 (1988).
- Z. Z. Sheng, A. M. Hermann, A. ElAli, C. Almasan, J. Estrada, **T. Datta**, and R.J. Matson, "Superconductivity at 90K in the Tl-Ba-Cu-O System". *Phys. Rev. Letts.* 60, 937 (1988).
- **T. Datta**, R. Noufi, and S.K. Deb, "Electrical Conductivity in P-type CuInSe<sub>2</sub> Thin Films". *Appl. Phys. Lett.* 47, 1102 (1985).
- **T. Datta** and L. Ford, "Retarded Van Der Waals Potential between Conducting Plane and a Polarizable Particle". *Phys. Letts.* 83A. 314 (1981).
- J. P. Perdew and **T. Datta**, "Charge and Spin Density Waves in Jellium". *Phys. Stat. So. (b)* 102. 283 (1980).
- R.B. Somoano, A. Gupta, V. Haedek, S.K. Khanna, M. Novotny... M. Jones, **T. Datta**, et al, Electrical, Magnetic and Optical properties of TTFI Pseudohalides, *Phys. Rev.B*, 15, 595 (1977).
- **Book:** Charles P. Poole, **Timir Datta**, and Horatio A. Farach, *Copper Oxide Superconductors*, Wiley, (1988). ISBN: 978-0-471-62342-7
- **Encyclopedia Article:** **T. Datta**, Oxide Superconductor, Phys Properties; *Concise Encyclopedia of Mag & Superconducting Mater*, Ed. Jan Evetts, Pergamon (1992), ISBN: 0-08-034722-3
- **Patent:** A.M. Herman, Nazariopor, and **T. Datta**, US Patent for flux-trapped magnet, Patent Number: 5,444,425, August 22, (1995).