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Professional Appointments

- **Postdoctoral Researcher,** 03/2012 - *Present*
(Supervisor: Prof. Dr. J. Wu)
Department of Material Science and Engineering
University of California at Berkeley
- **Postdoctoral Researcher,** 01/2011 - 03/2012
(Supervisor: Prof. Dr. Arthur F. Hebard & Prof. Dr. B. R. Appleton)
Department of Material Science and Engineering
University of Florida
- **Graduate Research Assistant,** 08/2005 – 12/2010
(Supervisor: Prof. Dr. Arthur F. Hebard)
Department of Physics, University of Florida
- **Graduate Research Assistant,** 09/2002 – 06/2005
(Supervisor: Prof. Dr. S. Ciraci)
Department of Physics, Bilkent University, Turkey

Education

- **Ph.D in Physics,** University of Florida 2010
Dissertation "Graphene /Graphite Based Semiconductor Junction Diodes"
(Supervisor: Prof. Dr. Arthur F. Hebard)
- **M.S in Physics,** Bilkent University, Turkey 2004
Thesis "Carbon and Silicon Based Nanostructures"
(Supervisor: Prof. Dr. Salim Ciraci)
- **B.S in Physics,** Ege University, Turkey 2002
Thesis "Calculation of inner-sphere reorganization energy using molecular orbital methods" (Supervisor: Prof. E. Cebe)

Honors and Awards

- Winner of **Tom Scott Memorial award** which is made annually to Ph.D student who has shown distinction in research at University of Florida (2009)
- **Ranked 1st** out of 200 in undergraduate physics education from Ege university.
- Awarded **Turkish Presidential Scholarship** from 1998 to 2002.

- **Awarded Bilkent University Board of Trustees Scholarship** donated for graduate study from 2002 to 2005.
- Co-winner of best poster in NanoFlorida 2009
- Awarded 2010 University of Florida Travel grant
- Author of **24 articles** in internationally recognized SCI-indexed journals such as **Nature Physics, Physical Review Letters, Nano Letters, Carbon** and **Applied Physics Letters** with **h-index of 9**.
- Publish one patent on “Graphite and/or graphene semiconductor devices” Publication no WO/2011/115891
- Filed U.S patent “Graphene and Graphene nanoribbon production via Implantation onto SiC”
- Given more than 30 invited talks & seminars

Professional Activities

- **Reviewer**, Nano Letters, Applied Physics Letters, Journal of Applied Physics, Nanotechnology, and Carbon
- **Member**, American Physical Society and Materials Research Society
- **APS session chair** 2012 Boston March meeting **H12** “Chemical Doping of Graphene and Applications: Solar Cells, Sensors” and **Z17** 2D Crystals: Beyond Graphene
- **APS Sorters meeting member**

Research Interests

- Carbon allotropes: Graphene, graphite, CNTs, and C60s
- Graphene derivatives: Fluorinated, hydrogenated, and nitrogen doped graphene
- Functional 2D materials and applications
- Carbon based devices / device physics
- Thin film growth, complex oxides, ferroelectrics
- Fundamental materials research on graphene growth
- Gas / Bio sensing
- Solar cells, photodiodes
- Magnetization properties of carbon allotropes and other magnetic systems
- Semiconductor physics and organic semiconductors

Patents

- “Graphite and/or graphene semiconductor devices” Publication no WO/2011/115891 (Prof. Arthur F. Hebard and Dr. S. Tongay)
<http://apps.research.ufl.edu/otl/pdf/marketing/13292.pdf>
- “Selective Graphene Growth on SiC substrates” (Provisional Patent) (Dr. S. Tongay, M. Lemaitre, Dr. B. Gila, and Prof. B. R. Appleton)

Media Feature

“New Graphene Solar Cell Efficiency” **Scientific American** 05/25/12

“Physicists set new record for graphene solar cell efficiency” **PhysOrg, ScienceDaily, Sciencemag** 05/23/12

“Dopant gives graphene solar cells highest efficiency yet” **PhysOrg** 05/21/12

“Writing Graphene Circuits with ion pens” **ScienceDaily, PhysOrg, Newwise, eScienceNews** 03/27/12

Publications

Summary: Number of publications in SCI-index Journals including **Nature Physics, Nano Letters, Physical Review Letters, Carbon, Applied Physics Letters**, and Phys. Rev. B editor’s suggestion / recommendations.

24. Low-temperature, site selective graphitization of SiC via ion implantation and pulsed laser annealing

M. G. Lemaitre, S. Tongay, X. Wang, D. K. Venkatachalam, J. Fridmann, B. P. Gila, A. F. Hebard, F. Ren, R. G. Elliman, and B. R. Appleton
Appl. Phys. Lett. **100**, 193105 (2012)

23. High Efficiency Graphene Solar Cells by Chemical Doping

X. Miao*, S. Tongay*, K. Berke, B. R. Appleton, and A. F. Hebard (* Equal contribution)
Published in **Nano Letters** (2012)

Featured in popular media:

- “New Graphene Solar Cell Efficiency” **Scientific American**
- “Physicists set new record for graphene solar cell efficiency” **PhysOrg, ScienceDaily, Sciencemag**
- “Dopant gives graphene solar cells highest efficiency yet” **PhysOrg**

22. Drawing Graphene Nanoribbons on SiC by Ion Implantation,

S. Tongay, M. Lemaitre, J. Fridmann, A. F. Hebard, B. Gila and B. R. Appleton
Appl. Phys. Lett. **100**, 073501 (2012)

- **#1 Most downloaded** article in February 2012
- **#3 Most downloaded** article in March 2012
- Selected for **Research Highlight** in APL
- **Cover image for the Feb14th** issue of APL
- **Featured in Internet media ‘Writing Graphene Circuits with ion pens’** such as ScienceDaily, PhysOrg, Newwise, eScienceNews
- Highlighted by Virtual Journal of Nanoscale Science & Technology

21. Extinction of ferromagnetism in highly ordered Pyrolytic graphite by annealing
X. Miao*, S. Tongay*, A. F. Hebard (* Equal contribution)
Carbon, 50, 1614 (2012)
20. Stable Hole Doping of Graphene for Low Electrical Resistance and High Optical Transparency
S. Tongay, K. Berke, M. Lemaitre, Z. Nasrollahi, D. B. Tanner, A. F. Hebard, and B. R. Appleton
Nanotechnology, 22, 425701 (2011)
19. Rectification at Graphene-Semiconductor Interfaces: Zero-Gap Semiconductor Based Diode
S. Tongay, M. Lemaitre, X. Miao, B. Gila, B. R. Appleton, and A. F. Hebard
Phys Rev X, 2, 011002 (2012)

Featured in APS Physics, Editorial:Current Graphene Research-Going Beyond Pure Monolayer

18. Graphene / GaN Diodes: Stability at Elevated Temperatures
S. Tongay, M. Lemaitre, K. Berke, B. R. Appleton, B. Gila, A. F. Hebard
Appl. Phys. Lett. 99, 102102 (2011)

Top 20 most downloaded article September 2011

Highlighted by Virtual Journal of Nanoscale Science & Technology (September 19th, 2011)

17. Strain Induced Suppression of Weak Localization in CVD-grown Graphene
X. Miao*, S. Tongay*, and A.F. Hebard
In preparation for **Phys. Rev. B.** (2011)
16. Charge Transport Across the Pentacene/Graphene Junctions
K. Berke, S. Tongay, M. McCarthy, A. Rinzler, and A. F. Hebard
Submitted to **Journal of Physics Condensed Matter** (2012)
15. Ultrapure Multilayer Graphene in Bromine Intercalated Graphite
J. Hwang, J. P. Carbotte, S. Tongay, A. F. Hebard, and D. B. Tanner
Phys. Rev. B 84, 041410(R) (2011) **Selected as Editors Suggestion**
14. Tuning Schottky diodes at the many-layer-graphene/semiconductor interface by doping
Tongay S.; Schumann T.; Miao X.; et al.
CARBON Volume: 49 Issue: 6 Pages: 2033-2038 (2011)
13. Finite size effects with variable range exchange coupling in thin-film Pd/Fe/Pd trilayers
R.K. Das, R. Misra, S. Tongay, R. Rairigh and A.F. Hebard
Journal of Magnetism and Magnetic Materials Vol.322, Issue 17, 2618-2621 (2011)
12. Supermetallic conductivity in bromine-intercalated graphite
S. Tongay, J. Hwang, D. B. Tanner, H. K. Pal, D. Maslov, and A. F. Hebard
Phys. Rev. B 81, 115428 (2010)
11. Graphite based Schottky diodes formed on Si, GaAs, and 4H-SiC substrates
S. Tongay, T. Schumann and A. F. Hebard
Applied Physics Letters Volume: 95 Issue: 22 Article Number: 222103
10. Magnetodielectric coupling in nonmagnetic Au/GaAs:Si Schottky barriers
S. Tongay, A. F. Hebard, Y. Hikita, and H. Y. Hwang
Phys. Rev. B 80, 205324 (2009)

9. Graphite in the bi-layer regime: in-plane transport
D. Gutman, S. Tongay, H. Pal, D. Maslov and A. F. Hebard **Phys. Rev. B.** 80, 045418 (2009)
Selected as Editors Suggestion
8. Colossal magnetocapacitance and scale-invariant dielectric response in phase-separated manganites
R.P. Rairigh, G. Singh-Balla, S. Tongay, T. Dhakal, A. Biswas and A. Hebard
Nature Physics, 3, 551 (2007)
7. Half-metallic properties of atomic chains of carbon–transition-metal compounds
S. Dag, S. Tongay, T. Yildirim, E. Durgun, R. T. Senger, C. Y. Fong, and S. Ciraci
Phys. Rev. B 72, 155444 (2005)
6. Silicon and III-V compound nanotubes: Structural and electronic properties
E. Durgun, S. Tongay, and S. Ciraci
Phys. Rev. B 72, 075420 (2005)
5. Atomic chains of group-IV elements and III-V and II-VI binary compounds studied by a first principles pseudopotential method
R. T. Senger, S. Tongay, E. Durgun, and S. Ciraci
Phys. Rev. B 72, 075419 (2005)
4. Carbon string structures: First-principles calculations of quantum conductance
R. T. Senger, S. Tongay, S. Dag, E. Durgun, and S. Ciraci
Phys. Rev. B 71, 235406 (2005)
3. Atomic and electronic structure of carbon strings
S. Tongay, S. Dag, E. Durgun, R. T. Senger and S. Ciraci
J. Phys: Condens. Matter 17, 3823 (2005)
2. Ab-initio Electron Transport Calculations of Carbon Based String Structures
S. Tongay, R. T. Senger, S. Dag, and S. Ciraci
Phys. Rev. Lett. 93, 136404 (2004)
1. Atomic strings of group IV, III-V, and II-VI elements
S. Tongay, E. Durgun, S. Ciraci
Appl. Phys Lett 85, 6179 (2004)

References

- Prof. Dr. Arthur F. Hebard, Department of Physics, University of Florida
- Prof. Dr. Bill R. Appleton, Department of Material Science, University of Florida
- Prof. Dr. Junqiao Wu, Department of Material Sci & Eng, University of California, Berkeley
- Prof. Dr. Andrew Rinzler, Department of Physics, University of Florida
- Prof. Dr. David B. Tanner, Department of Physics, University of Florida
- Prof. Dr. Brent Gila, Department of Material Science, University of Florida
- Prof. Dr. Amlan Biswas, Department of Physics, University of Florida
- Prof. Dr. Salim Ciraci, Department of Physics, Bilkent University

