

Research Grants Approved and Funded

- Koratkar has won **39 grants (totaling > \$11 Million)** from various agencies such as the USA National Science Foundation, Office of Naval Research, Army Research Office, Advanced Energy Consortium & Industry (Motorola, Honeywell).
- **21 of these awards are from the National Science Foundation** including highly prestigious awards such as CAREER and two separate Nanoscale Interdisciplinary Research Team (NIRT) awards.
- Koratkar is **Principal Investigator (PI) on 35 of the 39 awards** that he was won.

(1) Sponsor: **National Science Foundation**

Title: Fundamental Study of Fatigue Life Enhancement in Hierarchical Carbon-Fiber/Epoxy/Nanoparticle Composites

Funds: \$397,537

Period: 09/01/2020-09/01/2023

Effort: Principal Investigator

(2) Sponsor: **National Science Foundation**

Title: Fundamental Study of Interaction of Ions Present in Water with Graphene Coatings for Energy Harvesting

Funds: \$317,268

Period: 09/01/2020-09/01/2023

Effort: Principal Investigator

(3) Sponsor: **National Science Foundation**

Title: Collaborative Research: Fundamental Study of Environmentally Stable and Lead-Free Chalcogenide Perovskites for Optoelectronic Device Engineering

Funds: \$370,506

Period: 09/01/2020-09/01/2023

Effort: Principal Investigator

(4) Sponsor: **National Science Foundation**

Title: PFI-TT: Demonstration and Device Level Characterization of Lithium-Metal Batteries in Pouch and Cylindrical Cell Form Factors

Funds: \$246,000

Period: 09/01/2019-09/01/2021

Effort: Principal Investigator

(5) Sponsor: New York State Energy Research and Development Authority

Title: A Paradigm Shift in the Economics of High Performance Li-Ion Battery Anodes Using Low-Cost Si Nanoparticles & Low-Cost Graphene-like Carbon

Funds: \$97,983

Period: 05/01/2018-12/31/2019

Effort: Principal Investigator

- (6) Sponsor: National Rotorcraft Technology Center
Title: Hierarchically Organized Graphene Nanocomposites for Rotorcraft Components
Funds: \$773,488
Period: 01/09/2017-01/09/2021
Effort: Principal Investigator
- (7) Sponsor: **National Science Foundation**
Title: Demonstration & Device Level Characterization of Li-ion Batteries with Graphene-Silicon Composite Anodes in Pouch and Cylindrical Cell Form Factors
Funds: \$200,000
Period: 01/09/2016-09/01/2018
Effort: Principal Investigator
- (8) Sponsor: **National Science Foundation**
Title: Transition Metal Doping in Two-Dimensional Atomically Thin Semiconductors
Funds: \$398,802
Period: 01/09/2016-01/09/2019
Effort: Principal Investigator
- (9) Sponsor: **National Science Foundation**
Title: Dendrite-Free Storage of Lithium Metal in Porous Graphene Networks
Funds: \$300,000
Period: 15/09/2015-14/09/2018
Effort: Principal Investigator
- (10) Sponsor: New York State Energy Research and Development Authority
Title: Scalable Graphene Anodes
Funds: \$69,000
Period: 01/01/2016-01/08/2017
Effort: Principal Investigator
- (11) Sponsor: **National Science Foundation**
Title: Scalable manufacturing of photo-thermally reduced graphene paper for next generation Lithium-ion batteries
Funds: \$300,000
Period: 01/08/2014-01/08/2017
Effort: Principal Investigator
- (12) Sponsor: Honeywell
Title: Graphene ceramic nanocomposites- synthesis and characterization
Funds: \$75,000
Period: 01/08/2014-01/08/2015
Effort: Principal Investigator

- (13) Sponsor: New York State Energy Research and Development Authority
Title: High Energy Density Cathode Materials for Use in Lithium-Sulfur Batteries Through a Green Chemistry Approach
Funds: \$122,000
Period: 01/08/2014-01/08/2016
Effort: Co-Investigator
- (14) Sponsor: **National Science Foundation**
Title: Fundamental study of wear in graphene composites
Funds: \$378,418
Period: 01/08/2012 - 01/08/2015
Effort: Principal Investigator
- (15) Sponsor: National Research Foundation of Korea
Title: Three-dimensional high energy density batteries
Funds: \$250,000
Period: 01/01/2013 - 01/01/2016
Effort: Principal Investigator
- (16) Sponsor: New York State Energy Development and Research Authority
Title: Graphene based anodes for Li-ion batteries with breakthrough improvements in energy density, power density and cycle stability
Funds: \$118,000
Period: 01/09/2013 - 01/01/2015
Effort: Principal Investigator
- (17) Sponsor: **National Science Foundation**
Title: Physics-Based Study of Graphene Colloidal Systems as Metal Working Fluids for Micro-Machining Applications
Funds: \$393,775
Period: 01/08/2011 - 01/08/2014
Effort: Co-Investigator
- (18) Sponsor: Advanced Energy Consortium
Title: Nanofluidic Power Generation using Two-Dimensional (Graphene) Nanomaterials
Funds: \$700,000
Period: 01/01/2010 - 01/04/2013
Effort: Principal Investigator
- (19) Sponsor: **National Science Foundation**
Title: Brittle Epoxies Rendered Ductile- Craze in Thermosetting Epoxy Nanocomposites
Funds: \$365,740
Period: 01/09/2009 - 01/09/2013
Effort: Principal Investigator

- (20) Sponsor: **National Science Foundation**
Title: Next Generation Li-Ion Batteries Featuring Nano-Engineered Anode Architectures
Funds: \$396,092
Period: 01/08/2010 - 01/08/2013
Effort: Principal Investigator
- (21) Sponsor: New York State Energy Development and Research Authority
Title: Next Generation High C-Rate Lithium-Ion Rechargeable Batteries
Funds: \$200,000
Period: 01/09/2010 - 01/09/2012
Effort: Principal Investigator
- (22) Sponsor: Office of Naval Research
Title: Hierarchical Nano-Composites: Dramatic Enhancements in Fatigue Resistance and Toughening
Funds: \$350,000
Period: 01/09/2009 - 01/09/2012
Effort: Principal Investigator
- (23) Sponsor: **National Science Foundation**
Title: Fundamental study of nucleate boiling on nanostructured interfaces
Funds: \$325,000
Period: 01/09/2009 - 01/09/2012
Effort: Co-Investigator
- (24) Sponsor: Physical Sciences, Inc.
Title: Self-Healing, Reinforced, Multifunctional Composite Material
Funds: \$112,478
Period: 01/05/2012 - 01/03/2013
Effort: Principal Investigator
- (25) Sponsor: US Army- Penn State Vertical Lift Research Center of Excellence
Title: Next Generation Carbon-Nanotube/Carbon-Fiber Composites for Mechanical Properties Enhancement and Structural Monitoring
Funds: \$259,000
Period: 01/06/2006 - 01/06/2011
Effort: Principal Investigator
- (26) Sponsor: **National Science Foundation**
Title: Fundamental Study of Photo-Thermo-Mechanical Actuation in Carbon Nanotubes and their Composites
Funds: \$200,000
Period: 01/08/2007 - 31/07/2011
Effort: Principal Investigator

- (27) Sponsor: **National Science Foundation**
Title: NSF-DFG Research Conference on Nanoscience and Nanotechnology
Funds: \$ 99,325
Period: 01/09/2009 - 31/08/2010
Effort: Principal Investigator
- (28) Sponsor: **National Science Foundation**
Title: CAREER: Advanced Nanostructured Damping Materials
Funds: \$400,000
Period: 01/07/2004 - 31/06/2009
Effort: Principal Investigator
- (29) Sponsor: **National Science Foundation**
Title: NIRT: Miniaturized Chemical Sensors Featuring Electrical Breakdown near Carbon Nanotube Tips
Funds: \$1300,000
Period: 01/09/2004 - 31/08/2009
Effort: Principal Investigator
- (30) Sponsor: **National Science Foundation**
Title: NIRT: Fundamental Study of Electro- and Magneto-Mechanical Nano-Assemblies
Funds: \$1150,000
Period: 01/09/2005 - 31/08/2009
Effort: Co-Investigator
- (31) Sponsor: Motorola
Title: Carbon Nanotube Devices for RFID Application
Funds: \$65,000
Period: 01/01/2008 - 01/04/2009
Effort: Principal Investigator
- (32) Sponsor: US Army Aviation & Missile Research, Development & Engineering Center
Title: Carbon Nanotube Composites for Structural Health Monitoring
Funds: \$42,000
Period: 01/12/2007 - 30/08/2008
Effort: Principal Investigator
- (33) Sponsor: Department of Defense
Title: DURIP: Nano-Composites Characterization Facilities in Support of US Army Funded Research at the Rensselaer Polytechnic Institute
Funds: \$150,000
Period: 01/08/2007 - 31/07/2008
Effort: Principal Investigator

- (34) Sponsor: US Army Benet Laboratory
Title: Fatigue Crack Growth Suppression in Carbon Nanotube Composites
Funds: \$15,000
Period: 01/01/2008 - 31/12/2008
Effort: Principal Investigator
- (35) Sponsor: **National Science Foundation**
Title: NER: Water Electrolysis Activated by Nanostructured Electrodes:
An Efficient Approach for Hydrogen Production
Funds: \$100,000
Period: 01/09/2006 - 01/09/2007
Effort: Principal Investigator
- (36) Sponsor: Army Research Office
Title: Multifunctional Carbon Nanotube Damping Films
Funds: \$238,552
Period: 13/04/2003 - 12/04/2006
Effort: Principal Investigator
- (37) Sponsor: **National Science Foundation**
Title: Thermal and Electrical Transport in Carbon Nanotube Films
Funds: \$100,000
Period: 01/08/2003 - 01/04/2005
Effort: Principal Investigator
- (38) Sponsor: **National Science Foundation**
Title: Minimally Intrusive Damping Films Featuring Carbon Nanotubes
Funds: \$100,000
Period: 01/09/2002 - 30/08/2003
Effort: Principal Investigator
- (39) Sponsor: Mainstream Engineering Corporation
Title: Carbon Nanotube Based Ultracapacitors for High Pulse-Power Applications
Funds: \$21,000
Period: 01/07/2004 - 30/02/2005
Effort: Principal Investigator