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- Crazing 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  
Effort: Principal Investigator

(30) Sponsor: National Science Foundation  
Title: NIRT: Fundamental Study of Electro- and Magneto-Mechanical Nano-Assemblies  
Funds: $1150,000  
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  
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