Research Grants Approved and Funded

- Koratkar has won **35 grants (totaling ~ $9.7 Million)** from several agencies such as the National Science Foundation, Office of Naval Research, Army Research Office, Advanced Energy Consortium and Industry (Motorola, Honeywell).

- **Seventeen of these awards are from the National Science Foundation (NSF)** including highly prestigious awards such as CAREER and two separate Nanoscale Interdisciplinary Research Team (NIRT) awards.

- Koratkar is **Principal Investigator (PI) on 31 of the 35 awards** that he was won.

(1) **Sponsor:** New York State Energy Research and Development Authority (NYSERDA)  
**Title:** A Paradigm Shift in the Economics of High Performance Lithium-Ion Battery Anodes Using Low-Cost Silicon Nanoparticles & Low-Cost Graphene-like Carbon  
**Funds:** $97,983  
**Period:** 05/01/18-12/31/19  
**Effort:** Principal Investigator

(2) **Sponsor:** National Rotorcraft Technology Center (NRTC)  
**Title:** Hierarchically Organized Graphene Nanocomposites for Enhanced Fatigue Life of Rotorcraft Components  
**Funds:** $312,262  
**Period:** 09/01/17-09/01/21  
**Effort:** Principal Investigator

(3) **Sponsor:** National Science Foundation (NSF)  
**Title:** Demonstration & Device Level Characterization of Li-ion Batteries with Graphene and Graphene-Silicon Based Anodes in Pouch and Cylindrical Cell Form Factors  
**Funds:** $200,000  
**Period:** 09/01/16-02/28/18  
**Effort:** Principal Investigator

(4) **Sponsor:** National Science Foundation (NSF)  
**Title:** Transition Metal Doping in Two-Dimensional, Atomically Thin Semiconductors  
**Funds:** $398,802  
**Period:** 09/01/16-09/01/19  
**Effort:** Principal Investigator

(5) **Sponsor:** National Science Foundation (NSF)  
**Title:** Dendrite-Free Storage of Lithium Metal in Porous Graphene Networks  
**Funds:** $300,000  
**Period:** 09/15/15-09/14/18  
**Effort:** Principal Investigator

(6) **Sponsor:** New York State Energy Research and Development Authority (NYSERDA)  
**Title:** Scalable Graphene Anodes  
**Funds:** $69,000  
**Period:** 01/01/16-08/01/17  
**Effort:** Principal Investigator
(7) Sponsor: National Science Foundation (NSF)
   Title: Scalable manufacturing of photo-thermally reduced graphene paper for next
generation Lithium-ion batteries
   Funds: $300,000
   Period: 08/01/14-08/01/17
   Effort: Principal Investigator

(8) Sponsor: Honeywell
   Title: Graphene ceramic nanocomposites- synthesis and characterization
   Funds: $75,000
   Period: 08/01/14-08/01/15
   Effort: Principal Investigator

(9) Sponsor: New York State Energy Research and Development Authority (NYSERDA)
   Title: High Energy Density Cathode Materials for Use in Lithium-Sulfur Batteries
   Through a Green Chemistry Approach
   Funds: $122,000
   Period: 08/01/14-08/01/16
   Effort: Co-Investigator

(10) Sponsor: National Science Foundation (NSF)
    Title: Fundamental study of wear in graphene composites
    Funds: $378,418
    Period: 08/01/2012 - 08/01/2015
    Effort: Principal Investigator

(11) Sponsor: National Research Foundation of Korea (Through KAIST University)
    Title: Three-dimensional high energy density batteries
    Funds: $250,000
    Period: 01/01/2013 - 01/01/2016
    Effort: Principal Investigator

(12) Sponsor: New York State Energy Development and Research Authority (NYSERDA)
    Title: Graphene based anodes for Li-ion batteries with breakthrough improvements in
    energy density, power density and cycle stability
    Funds: $118,000
    Period: 09/01/2013 - 01/01/2015
    Effort: Principal Investigator

(13) Sponsor: National Science Foundation (NSF)
    Title: Physics-Based Study of Graphene Colloidal Systems as Metal Working Fluids for
    Micro-Machining Applications
    Funds: $393,775
    Period: 08/01/2011 - 08/01/2014
    Effort: Co-Investigator

(14) Sponsor: Advanced Energy Consortium (AEC)
    Title: Nanofluidic Power Generation using Two-Dimensional (Graphene) Nanomaterials
    Funds: $700,000
    Period: 01/01/2010 - 04/01/2013
    Effort: Principal Investigator
(15) Sponsor: National Science Foundation (NSF)
Title: Brittle Epoxies Rendered Ductile- Crazing in Thermosetting Epoxy Nanocomposites
Funds: $365,740
Period: 09/01/2009 - 09/01/2013
Effort: Principal Investigator

(16) Sponsor: National Science Foundation (NSF)
Title: Next Generation Li-Ion Batteries Featuring Nano-Engineered Anode Architectures
Funds: $396,092
Period: 08/01/2010 - 08/01/2013
Effort: Principal Investigator

(17) Sponsor: NYSERDA
Title: Next Generation High C-Rate Lithium-Ion Rechargeable Batteries
Funds: $200,000
Period: 09/01/2010 - 09/01/2012
Effort: Principal Investigator

(18) Sponsor: Office of Naval Research (ONR)
Title: Hierarchical Nano-Composites: Dramatic Enhancements in Fatigue Resistance and Toughening
Funds: $350,000
Period: 09/01/2009 - 09/01/2012
Effort: Principal Investigator

(19) Sponsor: National Science Foundation (NSF)
Title: Fundamental study of nucleate boiling on nanostructured interfaces
Funds: $325,000
Period: 09/01/2009 - 09/01/2012
Effort: Co-Investigator

(20) Sponsor: Physical Sciences, Inc. (Army STTR program- Phase 2 funding)
Title: Self-Healing, Reinforced, Multifunctional Composite Material
Funds: $112,478
Period: 05/01/2012 - 03/01/2013
Effort: Principal Investigator

(21) Sponsor: US Army- Penn State Vertical Lift Research Center of Excellence (VLRCOE)
Title: Next Generation Carbon-Nanotube/Carbon-Fiber Composites for Mechanical Properties Enhancement and Structural Monitoring
Funds: $259,000
Period: 06/01/2006 - 06/01/2011
Effort: Principal Investigator

(22) Sponsor: National Science Foundation (NSF)
Title: Fundamental Study of Photo-Thermo-Mechanical Actuation in Carbon Nanotubes and their Composites
Funds: $200,000
Period: 08/01/2007 - 07/31/2011
Effort: Principal Investigator
(23) Sponsor: National Science Foundation (NSF)  
Title: NSF-DFG Research Conference on Nanoscience and Nanotechnology  
Funds: $ 99,325  
Period: 09/01/2009 - 08/31/2010  
Effort: Principal Investigator

(24) Sponsor: National Science Foundation (NSF)  
Title: CAREER: Advanced Nanostructured Damping Materials  
Funds: $400,000  
Period: 07/01/2004 - 06/31/2009  
Effort: Principal Investigator

(25) Sponsor: National Science Foundation (NSF)  
Title: NIRT: Miniaturized Chemical Sensors Featuring Electrical Breakdown near Carbon Nanotube Tips  
Funds: $1300,000  
Period: 09/01/2004 - 08/31/2009  
Effort: Principal Investigator

(26) Sponsor: National Science Foundation (NSF)  
Title: NIRT: Fundamental Study of Electro- and Magneto-Mechanical Nano-Assemblies  
Funds: $1150,000  
Period: 09/01/2005 - 08/31/2009  
Effort: Co-Investigator

(27) Sponsor: Motorola  
Title: Carbon Nanotube Devices for RFID Application  
Funds: $65,000  
Period: 01/01/2008 - 04/01/2009  
Effort: Principal Investigator

(28) Sponsor: US Army Aviation & Missile Research, Development & Engineering Center  
Title: Carbon Nanotube Composites for Structural Health Monitoring  
Funds: $42,000  
Period: 12/01/2007 - 08/30/2008  
Effort: Principal Investigator

(29) 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: 08/01/2007 - 07/31/2008  
Effort: Principal Investigator

(30) Sponsor: US Army Benet Labs  
Title: Fatigue Crack Growth Suppression in Carbon Nanotube Composites  
Funds: $15,000  
Period: 01/01/2008 - 12/31/2008  
Effort: Principal Investigator
(31) Sponsor: National Science Foundation (NSF)
   Title: NER: Water Electrolysis Activated by Nanostructured Electrodes: An Efficient Approach for Hydrogen Production
   Funds: $100,000
   Period: 09/01/2006 - 09/01/2007
   Effort: Principal Investigator

(32) Sponsor: Army Research Office
   Title: Multifunctional Carbon Nanotube Damping Films
   Funds: $238,552
   Period: 04/13/2003 - 04/12/2006
   Effort: Principal Investigator

(33) Sponsor: National Science Foundation (NSF)
   Title: NUE: Thermal and Electrical Transport in Carbon Nanotube Films
   Funds: $100,000
   Period: 08/01/2003 - 04/01/2005
   Effort: Principal Investigator

(34) Sponsor: National Science Foundation (NSF)
   Title: NER: Minimally Intrusive Damping Films Featuring Carbon Nanotubes
   Funds: $100,000
   Period: 09/01/2002 - 08/30/2003
   Effort: Principal Investigator

(35) Sponsor: Mainstream Engineering Corporation
   Title: Carbon Nanotube Based Ultracapacitors for High Pulse-Power Applications
   Funds: $21,000
   Period: 07/01/2004 - 02/30/2005
   Effort: Principal Investigator