Research Grants Approved and Funded

- Koratkar has won 35 grants (totaling ~ $11 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 30 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: United States Army
Title: Vertical Lift Research Center of Excellence (VLRCOE) at Rensselaer Polytechnic Institute
Funds: $1,600,000
Period: 01/01/18-12/31/21
Effort: Co-Investigator (PI: Dr. Farhan Gandhi)

(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