

Research Grants Approved and Funded

- Koratkar has won **22 grants (totaling ~ \$7.3 Million)** from several agencies such as the National Science Foundation, Office of Naval Research, Army Research Office, Rotorcraft Center of Excellence (Penn State) and Industry (motorola, advanced energy consortium). **Awards 1-7 below are active (on-going).**
- Twelve of these awards are from NSF including highly prestigious awards such as **CAREER** and two separate **Nanoscale Interdisciplinary Research Team (NIRT)** awards.
- Koratkar is the **Principal Investigator (PI) on 19 of the 22 awards** that he was won.

- (1) Sponsor: Advanced Energy Consortium (AEC)
 Title: Nanofluidic Power Generation using One-Dimensional (Carbon Nanotube) and Two-Dimensional (Graphene) Nanomaterials
 Funds: \$1000,000
 Period: 01/01/2010 - 01/01/2013
 Effort: Principal Investigator
 Associates: Yunfeng Shi (RPI) and Pulickel Ajayan (Rice)

- (2) 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
 Associates: Johnson Samuel (RPI)

- (3) Sponsor: National Science Foundation (NSF)
 Title: Brittle Epoxies Rendered Ductile- Crazing in Thermosetting Epoxy Nanocomposites
 Funds: \$365,740
 Period: 09/01/2009 - 09/01/2012
 Effort: Principal Investigator
 Associates: Catalin Picu (RPI) and Rajesh Khare (TTU)

- (4) 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
 Associates: Toh-Ming Lu (RPI), Catalin Picu (RPI)

- (5) 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
 Associates: Toh-Ming Lu (RPI)

- (6) Sponsor: Office of Naval Research (ONR)
Title: Hierarchical Nano-Composites: Dramatic Enhancements in Fatigue Resistance and Toughening
Funds: \$350,000
Period: 09/01/2009 - 09/01/2013
Effort: Principal Investigator
Associates: Catalin Picu (RPI)
- (7) 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
Associates: Yoav Peles (Principal Investigator, RPI)
- (8) 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
Associates: Linda Schadler (RPI)
- (9) 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
Associates: Assad Oberai (RPI)
- (10) 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
Associates: None
- (11) Sponsor: National Science Foundation (NSF)
Title: CAREER: Advanced Nanostructured Damping Materials
Funds: \$400,000
Period: 07/01/2004 - 06/31/2009
Effort: Principal Investigator
Associates: None

- (12) 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
 Associates: Pulickel Ajayan, Theo Borca-Tasciuc, Saroj Nayak and Steve Cramer
- (13) 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
 Associates: Toh-Ming Lu (PI), Theo Borca-Tasciuc, Mutsuhiro Shima and Gwo-Ching Wang
- (14) Sponsor: Motorola
 Title: Carbon Nanotube Devices for RFID Application
 Funds: \$65,000
 Period: 01/01/2008 - 04/01/2009
 Effort: Principal Investigator
 Associates: None
- (15) 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
 Associates: None
- (16) 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
 Associates: None
- (17) 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
 Associates: None

- (18) 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
Associates: Toh-Ming Lu (RPI)
- (19) Sponsor: Army Research Office
Title: Multifunctional Carbon Nanotube Damping Films
Funds: \$238,552
Period: 04/13/2003 - 04/12/2006
Effort: Principal Investigator
Associates: Pulickel Ajayan (RPI), Prabhat Hajela (RPI)
- (20) 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
Associates: Pulickel Ajayan (RPI), Don Millard (RPI)
- (21) 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
Associates: Pulickel Ajayan (RPI)
- (22) 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
Associates: None