

## NIKHIL A. KORATKAR

### John A. Clark and Edward T. Crossan Professor

Rensselaer Polytechnic Institute (RPI), 110 8<sup>th</sup> St., Troy, NY 12180

[koratn@rpi.edu](mailto:koratn@rpi.edu)

[www.rpi.edu/~koratn](http://www.rpi.edu/~koratn)

### Professional Preparation

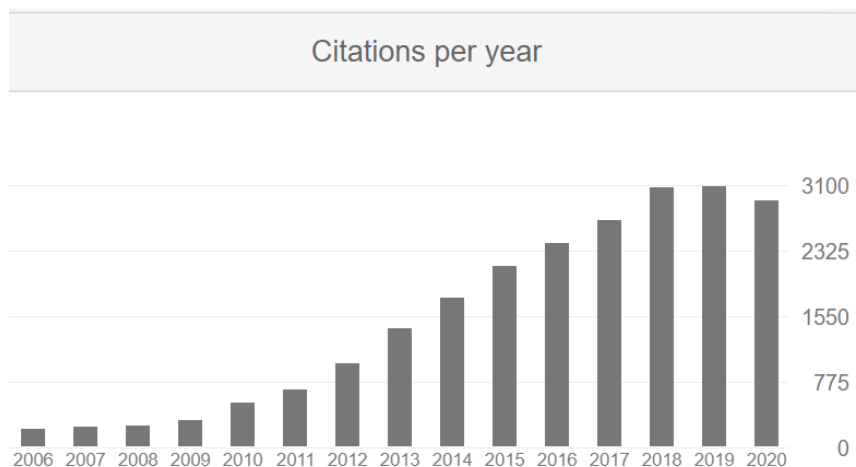
December 2000,	Ph.D., Aerospace Eng., University of Maryland at College Park, USA
June 1998,	M.S., Aerospace Eng., University of Maryland at College Park, USA
July 1995,	B.Tech, Aerospace Eng., Indian Institute of Technology (IIT)-Bombay, India

### Appointments

2012-Present,	John A. Clark and Edward T. Crossan Professor of Mechanical Engineering and Materials Science, Rensselaer Polytechnic Institute, USA
2011- Present,	Full Professor, Materials Science and Engineering, Rensselaer Polytechnic Institute, USA
2009-Present,	Full Professor, Mechanical, Aerospace and Nuclear Engineering, Rensselaer Polytechnic Institute, USA
2006-2009,	Associate Professor, Mechanical, Aerospace and Nuclear Engineering, Rensselaer Polytechnic Institute, USA
2001-2006,	Assistant Professor, Mechanical, Aerospace and Nuclear Engineering, Rensselaer Polytechnic Institute, USA

### Publication Summary

- Nikhil Koratkar has **215 journal papers**, 1 book and 4 book chapters published or in-press
- **> 23,000 citations** (Google Scholar) with an **H-index = 73**
- **67 papers in journals with impact factor (IF) > 10**. *One* in **Science** (IF: 41.8), *One* in **Nature** (IF: 42.7), *Three* in **Nature Materials** (IF: 38.6), *Four* in **Nature Communications** (IF: 12.1), *Ten* in **Advanced Materials** (Impact Factor: 27.3), *Fifteen* in **ACS Nano** (Impact Factor: 14.5), *Six* in **Nano Letters** (Impact Factor: 11.2), *Eight* in **Advanced Functional Materials** (Impact Factor: 16.8), *four* in **Energy Storage Materials** (Impact Factor: 16.2), *Five* in **Nano Energy** (Impact Factor: 16.6), *Two* in **Nano Today** (Impact Factor: 16.9) and *Eight* in **Small** (Impact Factor: 11.4).
- **60 publications with at least 100 citations**
- **Citation record** (Google Scholar)



## Full List of Publications :

\*indicates co-corresponding/first author (145 out of 215 papers)

Journals with impact factor > 10 are indicated in 'Bold'

Citation count is provided for all publications with > 50 citations

---

### 1997-2001

---

1. N. Koratkar\*, and I. Chopra, "Analysis and testing of a Froude-scaled helicopter rotor with piezoelectric bender actuated trailing-edge flaps", *Intelligent Material Systems & Structures* 8, 553-630 (1997).
2. N. Koratkar\*, and I. Chopra, "Analysis and testing of a Mach-scaled rotor with trailing-edge flaps", *AIAA Journal* 38, 1113-1124 (2000).
3. N. Koratkar\*, and I. Chopra, "Wind tunnel testing of a Mach-scaled rotor model with trailing-edge flaps", *Smart Materials and Structures* 10, 1-14 (2001).  
**Cited 70 times**

---

### 2002

---

4. N. Koratkar\*, B. Wei, and P. Ajayan, "Carbon nanotube films for damping applications", **Advanced Materials**, Vol. 14, No. 13, pp. 997-1000, (2002).  
**Cited 187 times**
5. N. Koratkar\*, and I. Chopra, "Wind tunnel testing of a smart rotor model with trailing-edge flaps", *Journal of the American Helicopter Society*, Vol. 47, No. 4, pp. 263-272, (2002). **Cited 65 times**
6. N. Koratkar\*, and I. Chopra, "Open-loop hover testing of a smart rotor model", *AIAA Journal*, Vol. 40, No. 8, pp. 1495-1502, (2002).

---

### 2003

---

7. A. Modi, N. Koratkar\*, E. Lass, B. Wei and P. Ajayan, "Miniaturized gas ionization sensors using carbon nanotubes", **Nature**, 424, 171-174, (2003).  
**Cited 1,126 times**
8. W. Zhang, J. Kim and N. Koratkar\*, "Energy-absorbent composites featuring embedded shape memory alloys" *Smart Materials and Structures*, Vol. 12, pp. 642-646, (2003).

9. N. Koratkar\*, B. Wei and P. Ajayan, "Multifunctional structural reinforcement featuring carbon nanotube films", *Composites Science and Technology*, Vol. 63, No. 11, pp. 1525-1531, (2003). **Cited 147 times**
10. J. Kim, Z. Rusak, and N. Koratkar\*, "Small-scale airfoil aerodynamic efficiency improvement by surface temperature and heat transfer" *AIAA Journal*, Vol. 41, No. 11, pp. 2105-2113, (2003).

---

#### 2004

---

11. J. P. Singh, N. Koratkar\*, T. Karabacak, T.-M. Lu and G.-C. Wang, "Field ionization of argon using  $\beta$ -phase W nanorods," *Applied Physics Letters* 85, 15, pp. 3226-3228, (2004).
12. N. Koratkar\*, A. Modi, J. Kim, B. Wei, R. Vajtai, S. Talapatra and P. Ajayan, "Mobility of carbon nanotubes in high electric fields," *Journal of Nanoscience and Nanotechnology*, Vol. 4, No. 1/2, pp. 69-71, (2004).
13. N. Koratkar\*, A. Modi, E. Lass, and P. Ajayan, "Temperature effects on resistance of aligned multi-walled carbon nanotube films," *Journal of Nanoscience and Nanotechnology*, Vol. 4, No. 7, pp. 744-748, (2004).

---

#### 2005

---

14. N. Koratkar\*, "Nanoscale field ionization sensors- a review", *International Journal of Nanoscience*, Vol. 4, pp. 945-949 (2005).
15. J. Suhr, N. Koratkar\*, P. Keblinski and P. Ajayan, "Viscoelasticity in carbon nanotube composites," **Nature Materials**, Vol. 4, pp. 134-137, (2005). **Cited 508 times**
16. J. Kim and N. Koratkar\*, "Feasibility study to develop a Mach-scaled swashplateless rotor model," *Smart Materials and Structures*, Vol. 14, No. 1, pp. 79-86, (2005).
17. N. Koratkar\*, J. Suhr, A. Joshi, R. Kane, L. Schadler, P. Ajayan, and S. Bartolucci, "Characterizing energy dissipation in single-walled carbon nanotube polycarbonate composites", *Applied Physics Letters*, Vol. 87, No. 6, 063102 (2005). **Cited 168 times**
18. J. Kim and N. Koratkar\*, "Effect of unsteady blade pitching motion on aerodynamic performance of micro-rotorcraft," *Journal of Aircraft*, Vol. 42, No. 4, pp. 874-881, (2005).

19. J. Nelson and N. Koratkar\*, “Eng. Note: Effect of miniaturized Gurney flaps on aerodynamic performance of micro-scale rotors,” *Journal of Aircraft*, Vol. 42, No. 2, pp. 557-561, (2005).

---

**2006**

---

20. W. Zhang, J. Suhr and N. Koratkar\*, “Observation of high buckling stability in carbon nanotube polymer composites”, **Advanced Materials**, Vol. 18, pp. 452-456 (2006).
21. R. Teki, N. Koratkar\*, T. Karabacak and T.-M. Lu, “Enhanced photo-emission from nanostructured surface topologies”, *Applied Physics Letters* 89, pp. 193116:1-3 (2006).
22. J. Suhr, W. Zhang, P. Ajayan, N. Koratkar\*, “Temperature activated interfacial friction damping in carbon nanotube polymer composites”, **Nano Letters**, 6, 219-223 (2006). **Cited 122 times**
23. S. Kim, T. Karabacak, T.-M. Lu and N. Koratkar\*, “Water Electrolysis Activated by Ru Nanorod Array Electrodes”, *Applied Physics Letters*, Vol. 88, pp. 263106:1-3 (2006). **Cited 68 times**
24. W. Zhang, J. Suhr and N. Koratkar\*, “Carbon nanotube/polycarbonate composites as multifunctional strain sensors”, *Journal of Nanoscience and Nanotechnology*, Vol. 6, pp. 960-964 (2006). **Cited 223 times**
25. Z. Wang, N. Koratkar\*, “Suppressing electrostatic screening in nanostructured electrode arrays”, *Journal of Nanoscience and Nanotechnology*, Vol. 6, pp. 1979-1984 (2006).
26. J. Suhr and N. Koratkar\*, “Effect of pre-strain on interfacial friction damping in carbon nanotube polymer composites”, *Journal of Nanoscience and Nanotechnology*, Vol. 6, pp. 1-4 (2006).
27. D.-B. Cho, J. Suhr and N. Koratkar\*, “Carbon nanotube thin film coating for improved thermal management in piezoceramic sheet actuators”, *Intelligent Materials Systems and Structures*, Vol. 17, pp. 209-216 (2006).
28. J. Suhr, N. Koratkar\*, D.-X. Ye and T.-M. Lu, “Damping properties of epoxy films with nanoscale fillers”, *Intelligent Materials Systems and Structures*, Vol. 17, pp. 255-260. (2006).
29. P. Ajayan, J. Suhr and N. Koratkar\*, “Utilizing interfaces in carbon nanotube reinforced polymer composites for structural damping”, *Journal of Materials Science* 41, 7824-7829 (2006). **Cited 94 times**

30. Z. Wang, L. Ci, L. Chen, S. Nayak, P. Ajayan and N. Koratkar\*, “Polarity-dependent electrochemically controlled transport of water through carbon nanotube membranes”, *Nano Letters* 7, 697 (2007). **Cited 184 times**
31. W. Zhang, V. Sakalkar, and N. Koratkar\*, “In situ health monitoring and repair in composites using carbon nanotube additives”, *Applied Physics Letters* 91, 133102 (2007). **Cited 63 times**
32. Z. Wang, C. Lopez, A. Hirsra and N. Koratkar\*, “Impact dynamics and rebound of water droplets on superhydrophobic carbon nanotube arrays”, *Applied Physics Letters* 91, 023105 (2007). **Cited 186 times**
33. Z. Wang, Y. Ou, T.-M. Lu and N. Koratkar\*, “Wetting and electrowetting properties of carbon nanotube templated parylene films”, *Journal of Physical Chemistry B* 111, 4296 (2007). **Cited 50 times**
34. Z. Wang, L. Ci, P. Ajayan and N. Koratkar\*, “Combined micro/nanoscale surface roughness for enhanced hydrophobic stability in carbon nanotube arrays”, *Applied Physics Letters* 90, 143117 (2007). **Cited 95 times**
35. L. Chen, Y. Zhang, N. Koratkar, P. Jena, and S. K. Nayak, “First principles study of interaction of molecular hydrogen with Li doped carbon nanotube peapod”, *Physical Review B*, 77, 033405 (2007). **Cited 56 times**
36. W. Zhang, R. C. Picu and N. Koratkar\*, “Suppression of fatigue crack growth in carbon nanotube composites”, *Applied Physics Letters* 91, 193109 (2007). **Cited 119 times**
37. Z. Wang, A. Joshi, R. Kane and N. Koratkar\*, “Creep mitigation in composites using carbon nanotube additives”, *Nanotechnology* 18, 185703 (2007). **Cited 67 times**
38. J. Suhr, A. Joshi, L. Schadler, R. Kane and N. Koratkar\*, “Effect of filler geometry on interfacial friction damping in polymer nano-composites”, *Journal of Nanoscience and Nanotechnology* 7, 1684 (2007).
39. J. Ryoo, P. Hajela, J. Suhr and N. Koratkar, “Estimation of Young’s modulus of singlewalled carbon nanotubes using cellular automata”, *Advances in Engineering Software* 38, 531 (2007).

---

## 2008

---

40. C. Li, Z. Wang, P.-I. Wang, Y. Peles, N. Koratkar\* and G. P. Peterson, “Nanostructured copper interfaces for enhanced boiling”, *Small* 4, 1084-1088 (2008). This work was featured by **Nature News** (04 July 2008), doi: 10.1038/news.2008.935  
**Cited 430 times**
41. C. Ma, L.J. Ji, R.P. Zhang, Y.F. Zhu, W. Zhang and N. Koratkar, “Alignment and dispersion of functionalized carbon nanotubes in polymer composites induced by an electric field”, *Carbon* 46, 706-710 (2008). **Cited 169 times**
42. J. P. Singh, R. Teki, L. Ci, P. Ajayan and N. Koratkar\*, “Detecting mechanical resonance in carbon nanotubes via inter-tube electrical transport measurements”, *Journal of Nanoscience and Nanotechnology* 8, 436-438 (2008).
43. W. Zhang, R.C. Picu and N. Koratkar\*, “Effect of carbon nanotube dimensions and dispersion on the fatigue behavior of epoxy nanocomposites” *Nanotechnology*, 19, 285709 (2008). **Cited 116 times**
44. S. Kim, S. Pal, P. Ajayan, T. Borca-Tasciuc and N. Koratkar\*, “Electrical breakdown gas detector featuring carbon nanotube array electrodes”, *Journal of Nanoscience and Nanotechnology* 8, 416-419 (2008).
45. R. Teki, T. C. Parker, H. Li, N. Koratkar\*, T.-M. Lu, and S. Li, “Low temperature synthesis of single crystalline ZnO nanorods by oblique angle deposition”, *Thin Solid Films*, 516, 4993–4996 (2008).
46. Z. Wang and N. Koratkar\*, “Electrically Controlled Wetting and Dewetting Transition on Silicon Micro-Pillar Arrays”, *Advanced Science Letters* 1, 222-225 (2008).
47. J. Suhr and N. Koratkar\*, “Energy dissipation in carbon nanotube composites- A review” *Journal of Materials Science* 43, 4370-4382 (2008). **Cited 149 times**

---

## 2009

---

48. W. Zhang, I. Srivastava, Y.-F. Zhu, C. R. Picu, and N. Koratkar\*, “Heterogeneity in Epoxy Nanocomposites Initiates Crazing: Significant Improvements in Fatigue Resistance and Toughening”, *Small* 5, 1403-1407 (2009). **Cited 108 times**
49. A. Proper, W. Zhang, S. Bartolucci, A. Oberai and N. Koratkar\*, “In situ detection of impact damage in composites using carbon nanotube sensor networks”, *Nanoscience and Nanotechnology Letters* 1, 3-7 (2009).

50. M. A. Rafiee, J. Rafiee, Z. Wang, H. Song, Z.-Z. Yu and N. Koratkar\*, “Enhanced Mechanical Properties of Nanocomposites at Low Graphene Content“, **ACS Nano** 3, 3884-3890 (2009). **Cited 2,046 times**
51. R. Teki, M. K. Datta, R. Krishnan, T. C. Parker, T.-M. Lu, P. N. Kumta and N. Koratkar\*, “Nanostructured Silicon Anodes for Lithium-Ion Rechargeable Batteries”, **Small** 5, 2236-2242 (2009). **Cited 405 times**
52. M. A. Rafiee, J. Rafiee, Z.-Z. Yu and N. Koratkar\*, “Buckling Resistant Graphene Nanocomposites”, *Applied Physics Letters* 95, 223103 (2009). **Cited 194 times**
53. R. Teki, T.-M. Lu and N. Koratkar\*, “Effect of Tip Geometry on Photo-Electron-Emission from Nanostructures”, *Journal of Nanoscience and Nanotechnology* 9, 1749-1753 (2009).
54. Y.-F. Zhu, C. Ma, W. Zhang, R.P. Zhang, N. Koratkar, J. Liang, “Alignment of multiwalled carbon nanotubes in bulk epoxy composites via electric field”, *Journal of Applied Physics* 105, 054319 (2009). **Cited 176 times**
55. M. Gasda, R. Teki, T.-M. Lu, N. Koratkar, G. A. Eisman, D. Gall, “Sputter-Deposited Pt PEM Fuel Cell Electrodes: Particles vs Layers”, *Journal of the Electrochemical Society*, 156, B614-B619 (2009). **Cited 66 times**

---

## 2010

---

56. M. A. Rafiee, J. Rafiee, I. Srivastava, Z. Wang, H. Song, Z.-Z. Yu, N. Koratkar\*, “Fracture and Fatigue in Graphene Nanocomposites”, **Small** 6, 179–183 (2010). **Cited 790 times**
57. I. Srivastava, A. Proper, M. A. Rafiee and N. Koratkar\*, “Three-Phase Textile Nanocomposites: Significant Improvements in Strength, Toughness and Ductility”, *Journal of Nanoscience and Nanotechnology* 10, 1025-1029 (2010).
58. I. Srivastava and N. Koratkar\*, “Fatigue and Fracture toughness of Epoxy Nanocomposites”, *JOM* 62, 50-57 (2010). **Cited 52 times**
59. J. Rafiee, M. A. Rafiee, Z.-Z. Yu & N. Koratkar\*, “Super-hydrophobic to Super-hydrophilic wetting control in Graphene Films”, **Advanced Materials** 22, 2151-2154 (2010). **Cited 366 times**
60. P.K. Dubey, A.S.K. Sinha, S. Talapatra, N. Koratkar, P.M. Ajayan, O.N. Srivastava, “Hydrogen generation by water electrolysis using carbon nanotube anode”, *International Journal of Hydrogen Energy* 35, 3945-3950 (2010). **Cited 76 times**

61. M. A. Rafiee, W. Lu, A. V. Thomas, A. Zandiatashbar, J. Rafiee, J. M. Tour and N. Koratkar\*, “Graphene Nano-ribbon Composites”, *ACS Nano* 4, 7415–7420 (2010). **Cited 253 times**
62. Z. Zhao, R. Teki, N. Koratkar, H. Efstathiadis, P. Haldar, ” Metal oxide buffer layer for improving performance of polymer solar cells”, *Applied Surface Science* 256, 6053-6056 (2010).
63. F. Yavari, M. A. Rafiee, J. Rafiee, Z.-Z. Yu and N. Koratkar\*, “Dramatic Increase in Fatigue Life in Hierarchical Graphene Composites”, *ACS Applied Materials & Interfaces* 2, 2738–2743 (2010). **Cited 193 times**
64. B. A. Malouin, Z. Wang, N. Koratkar and A. Hirs, “Directed rebounding of droplets by microscale surface roughness gradients”, *Applied Physics Letters* 96, 234103 (2010). **Cited 65 times**
65. R. Nagar, B. R. Mehta, R. Teki, N. Koratkar, V. G. Sathe, D. Kanjilal, J. P. Singh, “Radiation induced modification in nano-mechanical hardness of ZnO cone structures”, *Journal of Applied Physics* 108, 063519 (2010).
66. F. Yavari, C. Kritzinger, C. Gaire, L. Song, H. Gulapalli, T. Borca-Tasciuc, P. M. Ajayan and N. Koratkar\*, “Tunable band gap in graphene by the controlled adsorption of water molecules”, *Small* 6, 2535-2538 (2010). **Cited 294 times**

---

## 2011

---

67. K. S. Hazra, J. Rafiee, M. A. Rafiee, A. Mathur, S. S. Roy, J. McLauhlin, N. Koratkar and D. S. Misra, “Thinning of multilayer graphene to monolayer graphene in a plasma environment”, *Nanotechnology* 22, 025704 (2011). **Cited 61 times**
68. X.-Z. Tang, W. Li, Z.-Z. Yu, M. A. Rafiee, J. Rafiee, F. Yavari and N. Koratkar\*, “Enhanced thermal stability in graphene oxide covalently functionalized with 2-amino-4, 6-didodecylamino-1, 3, 5-triazine”, *Carbon* 49, 1258-1265 (2011). **Cited 186 times**
69. R. Nagar, R. Teki, I. Srivastava, J. P. Singh and N. Koratkar\*, “Carbon Nanotube Photo-Thermo-Mechanical Actuator”, *Journal of Nanoscience and Nanotechnology* 11, 935-940 (2011).
70. I. Srivastava, R. J. Mehta, Z.-Z. Yu, L. Schadler, and N. Koratkar\*, “Raman Study of Interfacial Load Transfer in Graphene Nanocomposites”, *Applied Physics Letters* 98, 063102 (2011). **Cited 73 times**



71. R. Krishnan, T.-M. Lu and N. Koratkar\*, “Functionally strain graded nanoscoops for high power Li-ion battery anodes”, **Nano Letters** 11, 377-384 (2011).

**Cited 121 times**

**5<sup>th</sup> most downloaded Nano Letters paper in January/February 2011**

72. M.A. Rafiee, J. Rafiee, F. Yavari and N. Koratkar\*, “Fullerene/Epoxy Nanocomposites- Enhanced Mechanical Properties at Low Nanofiller Loading”, *Journal of Nanoparticle Research* 13:733–737 (2011). **Cited 66 times**

73. L. S. Walker, V. R. Marotto, M. A. Rafiee, N. Koratkar, E. L. Corral, “Toughening in Graphene Ceramic Composites”, **ACS Nano** 5, 3182–3190 (2011). **Cited 545 times**

74. J. Samuel, J. Rafiee, P. Dhiman, Z.-Z. Yu and N. Koratkar\*, “Graphene Colloidal Suspensions as High Performance Semi-Synthetic Metal-Working Fluids”, *Journal of Physical Chemistry C* 115, 3410-3415 (2011). **Cited 60 times**

75. X. Chen, J. Wu, R. Ma, M. Hua, N. Koratkar\*, S. Yao, and Z. Wang, “Nanogressed Micropyramidal Architectures for Continuous Dropwise Condensation”, **Advanced Functional Materials** 21, 4617-4623 (2011). **Featured on the Cover, Cited 418 times**

76. K. S. Hazra, N. Koratkar and D. S. Misra, “Improved Field emission from multiwall carbon nanotubes with nano-size defects produced by ultra-low energy ion bombardment”, *Carbon* 49, 4760-4766 (2011).

77. F. Yavari, H. R. Fard, K. Pashayi, M. A. Rafiee, A. Zamiri, Z.-Z. Yu, R. Ozisik, T. Borca-Tasciuc, N. Koratkar\*, “Enhanced Thermal Conductivity in a Nanostructured Phase Change Composite due to Low Concentration Graphene Additives”, *Journal of Physical Chemistry C* 115, 8753–8758 (2011). **Cited 352 times**

78. X.-Y. Qi, D. Yan, Z. Jiang, Y.-K. Cao, Z.-Z. Yu, F. Yavari, N. Koratkar\*, “Enhanced Electrical Conductivity in Polystyrene Nanocomposites at Ultra-Low Graphene Content”, *ACS Applied Materials & Interfaces* 3, 3130-3133 (2011). **Cited 205 times**

79. P. Dhiman, F. Yavari, X. Mi, H. Gullapalli, Y. Shi, P. M. Ajayan, N. Koratkar\*, “Harvesting Energy from Water Flow over Graphene”, **Nano Letters** 11, 3123-3127 (2011). **Cited 154 times**

**Most downloaded Nano Letters paper in the entire 3<sup>rd</sup> quarter of 2011.**

**This study was also featured by Nature (Volume 476, Page 255, 2011) in their research highlights section (doi:10.1038/476255f).**

80. Stephen F. Bartolucci, Joseph Paras, Mohammad A. Rafiee, Javad Rafiee, Sabrina Lee, Deepak Kapoor, Nikhil Koratkar\*, “Graphene-Aluminum Nanocomposites”, *Materials Science & Engineering A* 528, 7933–7937 (2011). **Cited 428 times**
81. R. Bajpai, S. Roy, P. Kumar, P. Bajpai, N. Kulshrestha, J. Rafiee, N. Koratkar, and D. S. Misra, “Graphene Supported Platinum Nanoparticle Counter-Electrode for Enhanced Performance of Dye Sensitized Solar Cells”, *ACS Applied Materials & Interfaces* 3, 3884–3889 (2011). **Cited 153 times**
82. F. Yavari, Z. Chen, A. V. Thomas, W. Ren, H.-M. Cheng and N. Koratkar\*, “High sensitivity gas detection using a macroscopic three-dimensional graphene foam network”, *Scientific Reports* 1, 166; doi:10.1038/srep00166 (2011). **Cited 505 times**

---

**2012**

---

83. D. Zheng, G. Tang, H.-B. Zhang, Z.-Z. Yu, F. Yavari, N. Koratkar, S.-H. Lim, and M.-W. Lee, “In-situ thermal reduction of graphene oxide for high electrical conductivity and low percolation threshold in polyamide 6 composites”, *Composites Science and Technology*, 72, 284-289 (2012). **Cited 118 times**
84. V. Gadhamshetty and N. Koratkar\*, “Nano-Engineered Biocatalyst-Electrode Structures for Next Generation Microbial Fuel Cells”, *Nano Energy* 1, 3-5 (2012).
85. A. Zandiatashbar, C. R. Picu, and N. Koratkar\*, “Control of Epoxy Creep using Graphene”, *Small* 8, 1676-1682 (2012). **Cited 70 times**
86. R. Bajpai, S. Roy, P. Kumar, P. Bajpai, N. Kulshrestha, J. Rafiee, N. Koratkar, D. S. Misra, “Graphene supported Nickel nanoparticle as a viable replacement for Platinum in dye sensitized solar cells”, *Nanoscale* 4, 926-930 (2012). **Cited 112 times**
87. J. Rafiee, X. Mi, H. Gullapalli, A. Thomas, F. Yavari, Y. Shi, P. Ajayan, and N. Koratkar\*, “Wetting transparency of graphene”, *Nature Materials* 11, 217-222 (2012). **Cited 888 times**
- This paper was also featured in their News and Views Section: “Unobstrusive Graphene Coatings” *Nature Materials* 11, 182-183 (2012).**
88. M. Kumar, V. N. Singh, B. R. Mehta, N. Koratkar, and J. P. Singh, “Electron beam induced real time rocket-type propulsion effect in indium metal filled indium oxide nanotubes”, *Materials Letters* 68, 47-50 (2012).
89. A. Bush, A. Thomas, Z.-Z. Yu and N. Koratkar\*, “Wetting Behavior of Graphene Chitosan Nanocomposites for 3D Scaffold Structures”, *Adv. Sci. Eng. Med.* 4, 15-18 (2012)

90. S. S. Kandanur, M. A. Rafiee, F. Yavari, M. Schrameyer, Z.-Z. Yu, T. A. Blanchet and N. Koratkar\*, “Suppression of wear in graphene polymer composites”, *Carbon* 50, 3178–3183 (2012). **Cited 180 times**
91. R. Mukherjee, A. V. Thomas, A. Krishnamurthy, N. Koratkar\*, “Photo-Thermally Reduced Graphene as High Power Anodes for Lithium Ion Batteries”, *ACS Nano* 6, 7867-7878 (2012). **Cited 281 times**
92. I. Srivastava, Z.-Z. Yu and N. A. Koratkar\*, “Viscoelastic Properties of Graphene Polymer Composites”, *Adv. Sci. Eng. Med.* 4, 10-14 (2012).
93. X. Mi, V. Meunier, N. Koratkar and Y. Shi, “Facet-insensitive Graphene Growth on Copper”, *Physical Review B* 85, 155436 (2012).
94. F. Yavari and N. Koratkar\*, “Graphene based chemical sensors”, *Journal of Physical Chemistry Letters* 3, 1746-1753 (2012). **Featured on the Cover, Cited 420 times**
95. F. Yavari, L. Chen, A. Zandiatashbar, Z.-Z. Yu and N. Koratkar\*, “Synergy derived by combining graphene and carbon nanotubes as nanofillers in composites”, *Journal of Nanoscience and Nanotechnology* 12, 3165-3169 (2012).
96. A. Zandiatashbar, R.C. Picu and N. Koratkar, “Mechanical Behavior of Epoxy-Graphene Platelets Nanocomposites”, *ASME Journal of Engineering Materials and Technology*, 134, 031011 (2012).
97. R. Mukherjee, R. Krishnan, L.-M. Lu and N. Koratkar\*, “Nanostructured Electrodes for High-Power Lithium Ion Batteries”, *Nano Energy* 1, 518-533 (2012). **Cited 308 times**
98. G. Chatterjee, P. K. Singh, S. Ahmed, A. P. L. Robinson, A. D. Lad, S. Mondal, V. Narayanan, I. Srivastava, N. Koratkar, J. Pasley, A. K. Sood, and G. R. Kumar, “Macroscopic Transport of Megaampere Electron Currents in Aligned Carbon Nanotube Arrays”, *Physical Review Letters* 108, 235005 (2012).  
**This paper was featured in Nature Nanotechnology: “Going to new lengths” Nature Nanotechnology 7, 413 (2012).**
99. F. Yavari, E. Castillo, H. Gullapalli, P. M. Ajayan, and N. Koratkar\*, “High Sensitivity Detection of NO<sub>2</sub> and NH<sub>3</sub> in Air using Chemical Vapor Deposition grown Graphene”, *Applied Physics Letters* 100, 203120 (2012). **Cited 181 times**
100. A. Thomas, N. Koratkar and Y. Peles, “Dehumidification heat transfer on copper surfaces”, *International Journal of Heat and Mass Transfer* 55, 7858-7864 (2012).

101. E. Singh, Z. Chen, F. Houshmand, W. Ren, Y. Peles, H.-M. Cheng, N. Koratkar\*, “Superhydrophobic graphene foams”, *Small* 9, 75–80 (2013).  
**Featured on inside Cover. Cited 169 times**
102. A. Krishnamurthy, V. Gadhamshetty, R. Mukherjee, Z. Chen, W. Ren, H.-M. Cheng, and N. Koratkar\*, “Passivation of Microbial Corrosion Using a Graphene Coating”, *Carbon* 56, 45-49 (2013). **Cited 102 times**
103. A. Bianco, H.M. Cheng, T. Enoki, Y. Gogotsi, R. H. Hurt, N. Koratkar\*, T. Kyotani, M. Monthieux, C. R. Park, J. M. D. Tascon, J. Zhang, “All in the graphene family - A recommended nomenclature for two-dimensional carbon materials”, *Carbon* 65, 1-6 (2013). **Cited 658 times**
104. R. Bajpai, S. Roy, N. Koratkar and D. S. Misra, “NiO nanoparticles deposited on graphene platelets as a cost-effective counter electrode in a dye sensitized solar cell”, *Carbon* 56, 56-63 (2013). **Cited 51 times**
105. E. Singh, A. V. Thomas, R. Mukherjee, X. Mi, F. Houshmand, Y. Peles, Y. Shi, N. Koratkar\*, “Graphene Drape Minimizes the Pinning and Hysteresis of Water Drops on Nanotextured Rough Surfaces”, *ACS Nano* 7, 3512–3521 (2013).
106. N. Kulshrestha, A. Misra, N. Koratkar, and D. S. Misra, “Electrical Transport and Breakdown in Graphene Multilayers loaded with Electron Beam Induced deposited Platinum”, *ACS Applied Materials & Interfaces* 5, 3424–3430 (2013).
107. S.-H. Lee, V. Sridhar, J.-H. Jung, K. Karthikeyan, Y.-S. Lee, R. Mukherjee, N. Koratkar and I.-K. Oh, “Graphene-Nanotube-Iron Hierarchical Nanostructure as a Lithium Ion Battery Anode”, *ACS Nano* 7, 4242–4251 (2013).  
**Cited 168 times**
108. J. Zhong, Z. Yang, R. Mukherjee, A. V. Thomas, K. Zhu, P. Sun, J. Lian, H. Zhu and N. Koratkar\*, “Carbon Nanotube Sponges as Conductive Networks for Supercapacitor Devices”, *Nano Energy* 2, 1025-1030 (2013).
109. I. Arora, J. Samuel and N. Koratkar\*, “Experimental Investigation of the Machinability of Epoxy Reinforced with Graphene Platelets”, *ASME Journal of Manufacturing Science and Engineering* 135, 041007 (2013).
110. B. Chu, E. Singh, N. Koratkar, and J. Samuel, “Graphene-Enhanced Environmentally-Benign Cutting Fluids for High-Performance Micro-Machining Applications”, *Journal of Nanoscience and Nanotechnology* 13, 5500-5504 (2013).

111. S. A. Shojaee, A. Zandiatashbar, N. Koratkar, D. A. Lucca, “Raman Spectroscopic Imaging of Graphene Dispersion in Polymer Composites”, *Carbon* 62, 510-513 (2013).
112. J. Dang, F. Xiang, N. Gu, R. Zhang, R. Mukherjee; I. Oh, N. Koratkar\*, and Z. Yang, “Synthesis and Electrochemical Performance Characterization of Ce-doped  $\text{Li}_3\text{V}_2(\text{PO}_4)_3/\text{C}$  as Cathodes for Lithium-Ion Batteries”, *Journal of Power Sources* 243, 33-39 (2013). **Cited 74 times**

---

## 2014

---

113. R. Mukherjee, A. V. Thomas, D. Datta, E. Singh, J. Li, O. Eksik, V. B. Shenoy and N. Koratkar\*, “Defect Induced Plating of Lithium Metal within Porous Graphene Networks”, *Nature Communications* 5, 3710 (2014). **Cited 308 times**
114. A. Zandiatashbar, G.-H. Lee, S. J. An, S. Lee, N. Mathew, M. Terrones, T. Hayashi, R. C. Picu, J. Hone, N. Koratkar\*, “Effect of defects on the intrinsic strength and stiffness of graphene”, *Nature Communications* 5, 3186 (2014). **Cited 407 times**
115. O. Eksik , J. Gao , S. Ali Shojaee , A. Thomas , P. Chow , S. F. Bartolucci , D. A. Lucca , and N. Koratkar\*, “Epoxy Nanocomposites with Two-Dimensional Transition Metal Dichalcogenide Additives”, *ACS Nano* 8, 5282-5289 (2014). **Cited 107 times**
116. G.-T. Kim, S.-J. Gim, S.-M. Cho, N. Koratkar\* and I.-K. Oh, “Wetting-Transparent Graphene Films for Hydrophobic Water-Harvesting Surfaces”, *Advanced Materials*, 26, 5166-5172 (2014). **Featured on the inside Cover; Cited 80 times**
117. G. Xin, H. Sun, T. Hu, H. R. Fard, X. Sun, N. Koratkar, T. Borca-Tasciuc and J. Lian, “Large Area Free-Standing Graphene Paper for Superior Thermal Management”, *Advanced Materials* 26, 4521–4526 (2014). **Cited 267 times**
118. F. Xiang, J. Zhong, N. Gu, R. Mukherjee, I.-K. Oh, N. Koratkar\* and Z. Yang, “Far-Infrared Reduced Graphene Oxide as High Performance Electrodes for Supercapacitors”, *Carbon* 75, 201-208 (2014).
119. J. Zhong, J. Meng, X. Gui, T. Hu, N. Xie, X. Lu, Z. Yang, N. Koratkar\*, “Nanocarbon aerogel complexes inspired by the leaf structure”, *Carbon* 77, 637-644 (2014).
120. J. Gao, P. K. Chow, A. V. Thomas, T.-M. Lu, T. Borca-Tasciuc, N. Koratkar\*, “Reduced stability of copper interconnects due to wrinkles and steps on hexagonal boron nitride substrates”, *Applied Physics Letters* 105, 123108 (2014).

121. Dibakar Datta, Junwen Li, Nikhil Koratkar\*, Vivek B. Shenoy, “Enhanced Lithiation in Defective Graphene”, *Carbon* 80, 305-310 (2014). **Cited 120 times**
122. D. Shao, H. Sun, J. Gao, G. Xin, M. Anthony Aguilar, T. Yao, N. Koratkar, J. Lian, S. Sawyer, “Flexible, thorn-like ZnO-multiwalled carbon nanotube hybrid paper for efficient ultraviolet sensing and photocatalyst applications”, *Nanoscale* 6, 13630-13636 (2014).
123. W. J. Gerken, A. V. Thomas, N. Koratkar, M. A. Oehlschlaeger, “Nanofluid pendant droplet evaporation: experiments and modeling”, *International Journal of Heat and Mass Transfer* 74, 263-268 (2014).
124. N. K. Naik, K. S. Pandya, V. R. Kavala, W. Zhang and N. Koratkar, “Alumina nanoparticle filled epoxy resin: High strain rate compressive behavior”, *Polymer Engineering and Science*, 54, 2896-2901 (2014).
125. P. K. Chow, O. Eksik and N. Koratkar\*, “Mechanical Property Enhancement of Layered Reduced Graphene Oxide Papers by Non-Covalent Modification with Terephthalic Acid”, *Particles and Particle Systems Characterization* 31, 337–341 (2014).

---

## 2015

---

126. D. Shao, J. Gao, P. Chow, H. Sun, G. Xin, P. Sharma, J. Lian, N. Koratkar\*, S. Sawyer, “Organic–Inorganic Heterointerfaces for Ultrasensitive Detection of Ultraviolet Light”, *Nano Letters* 15, 3787–3792 (2015). **Cited 78 times**
127. G. Zhou, L. Li, C. Ma, S. Wang, Y. Shi, N. Koratkar, W. Ren, F. Li, H.-M. Cheng, “A graphene foam electrode with high sulfur loading for flexible and high energy Li-S batteries”, *Nano Energy* 11, 356-365 (2015). **Cited 450 times**
128. P. K. Chow, R. B. Jacobs-Gedrim, J. Gao, T.-M. Lu, B. Yu, H. Terrones, and N. Koratkar\*, “Defect-Induced Photoluminescence in Monolayer Semiconducting Transition Metal Dichalcogenides”, *ACS Nano* 9, 1520–1527 (2015). **Cited 266 times**
129. P. K. Chow, E. Singh, B. Viana, J. Gao, J. Luo, J. Li, Z. Lin, A. Elías, Y. Shi, Z. Wang, M. Terrones, N. Koratkar\*, “Wetting of Mono and Few-Layered WS<sub>2</sub> and MoS<sub>2</sub> Films Supported on Si/SiO<sub>2</sub> Substrates”, *ACS Nano* 9, 3023–3031 (2015). **Cited 149 times**
130. A. V. Thomas, B. C. Andow, S. Suresh, J. Yin, A. H. Dyson, and N. Koratkar\*, “Controlled Crumpling of Graphene Oxide Films for Tunable Optical Transmittance”, *Advanced Materials* 27, 3256–3265 (2015). **Featured on the inside Front Cover; Cited 97 times**

131. J. Zhong, J. Meng, Z. Yang, P. Poulin, N. Koratkar, "Shape memory fiber supercapacitors", **Nano Energy** 17, 330-338 (2015).
132. L. Li, Z. Wu, H. Sun, D. Chen, J. Gao, S. Suresh, P. Chow, C. V. Singh, and N. Koratkar\*, "A Foldable Lithium-Sulfur Battery", **ACS Nano** 9, 11342-11350 (2015). **Cited 94 times**
133. D. Shao, J. Gao, G. Xin, Y. Wang, L. Li, J. Shi, J. Lian, N. Koratkar\* and S. Sawyer, "Cl-doped ZnO Nanowire Arrays on 3D Graphene Foam with Highly Efficient Field Emission, and Photocatalytic Properties", **Small** 11, 4785-4792 (2015). **Cited 50 times**
134. F. Xiang, R. Mukherjee, J. Zhong, Y. Xia, N. Gu, Z. Yang, N. Koratkar\*, "Scalable and Rapid Far Infrared Reduction of Graphene Oxide for High Performance Lithium Ion Batteries", **Energy Storage Materials** 1, 9-16 (2015).
135. J. W. Hu, Z. P. Wu, S. W. Zhong, W. B. Zhang, S. Suresh, A. Mehta, N. Koratkar\*, "Folding Insensitive, High Energy Density Lithium-Ion Battery Featuring Carbon Nanotube Current Collectors", *Carbon* 87, 292-298 (2015). **Cited 52 times**
136. S. Roy, R. Bajpai, N. Koratkar, D.S. Misra, "Localized Transformation of Few-Layered Graphene Producing Graphitic Shells with Nanoparticle Cores for Catalytic Applications", *Carbon* 85, 406-413 (2015).
137. P. J. Smith, B. Chu, E. Singh, P. Chow, J. Samuel, N. Koratkar, "Graphene oxide colloidal suspensions mitigate carbon diffusion during diamond turning of steel", *Journal of Manufacturing Processes* 17, 41-47 (2015).
138. B. Chu, J. Samuel, N. Koratkar\*, "Micromilling Responses of Hierarchical Graphene Composites", *Journal of Manufacturing Science and Engineering* 137, 011002 (2015).
139. N. K. Naik, K. S. Pandya, V. R. Kavala, W. Zhang and N. Koratkar, "High-strain rate compressive behavior of multi-walled carbon nanotube dispersed thermoset epoxy resin", *Journal of Composite Materials* 49, 903-910 (2015).
140. S. Bhargava, N. Koratkar, T. A. Blanchet, "Effect of Platelet Thickness on Wear of Graphene-Polytetrafluoroethylene (PTFE) Composites", *Tribology Letters* 59, 1-12, (2015).
141. B. Chu, E. Singh, J. Samuel, N. Koratkar, "Graphene Oxide Colloidal Suspensions as Cutting Fluids for Micromachining - Part 1: Fabrication and Performance Evaluation", *ASME Journal of Micro and Nano Manufacturing* 3, 041002 (2015).

142. Q. Peng, L. Han, J. Lian, X. Wen, S. Liu, Z. Chen, N. Koratkar, Suvaranu De, “Mechanical Degradation of Graphene by Epoxidation: Insight from First-principles Calculations”, *Phys. Chem. Chem. Phys.* 17, 19484-19490 (2015).
143. A. Krishnamurthy, V. Gadhamshetty, R. Mukherjee, B. Natarajan, O. Eksik, S. A. Shojaee, D. A. Lucca, W. Ren, H.-M. Cheng, N. Koratkar\*, “Superiority of Graphene over Polymer Coatings for Prevention of Microbially Induced Corrosion”, *Scientific Reports* 5, 13858 (2015).

---

**2016**

---

144. J. Gao, B. Li, J. Tan, P. Chow, T.-M. Lu, N. Koratkar\*, “Aging of Transition Metal Dichalcogenide Monolayers”, *ACS Nano* 10, 2628–2635 (2016).  
**Cited 230 times**
145. J. Gao, Y. D. Kim, L. Liang, J. C. Idrobo, P. Chow, J. Tan, B. Li, L. Li, B. G. Sumpter, T.-M. Lu, V. Meunier, J. Hone, N. Koratkar\*, “Transition Metal Substitution Doping in Synthetic Atomically-Thin Semiconductors”, *Advanced Materials* 28, 9735-9743 (2016). **Cited 86 times**
146. J. Gao, L. Li, J. Tan, H. Sun, B. Li, J. C. Idrobo, C. V. Singh, T.-M. Lu, N. Koratkar\*, “Vertically Oriented Arrays of ReS<sub>2</sub> Nanosheets for Electrochemical Energy Storage and Electrocatalysis”, *Nano Letters* 16, 3780–3787 (2016).  
**Cited 159 times**
147. R. Tabassian, J.-H. Oh, S. Kim, D. Kim, S. Ryu, S.-M. Cho, N. Koratkar, I. Oh, “Graphene-coated Meshes for Electro-active Flow Control Devices utilizing two Antagonistic Functions: Repellency versus Permeability”, *Nature Communications*, 7, 13345 (2016).
148. N. Koratkar\*, “Materials Synthesis: 2D Gallium Nitride”, *Nature Materials* 15, 1153–1154 (2016).
149. J. Zhang, M. Terrones, C. R. Park, R. Mukherjee, M. Monthieux, N. Koratkar\*, Y. Kim, R. Hurt, E. Frackowiak, T. Enoki, Y. Chen, Y. Chen, A. Bianco, “Carbon science in 2016: Status, challenges and perspectives”, *Carbon* 98, 708-732 (2016).  
**Cited 188 times**
150. O. Eksik, A. Maiorana, S. Spinella, A. Krishnamurthy, S. Weiss, R. A. Gross, and N. Koratkar\*, “Nanocomposites of a Cashew Nut Shell Derived Epoxy Resin and Graphene Platelets: From Flexible to Tough”, *ACS Sustainable Chemistry & Engineering* 4, 1715–1721 (2016).



151. O. Eksik, S. Bartolucci, T. Gupta, H. Fard, T. Borca-Tasciuc, N. Koratkar\*, “A Novel Approach to Enhance the Thermal Conductivity of Epoxy Nanocomposites Using Graphene Core-Shell Additives”, *Carbon* 101, 239–244 (2016). **Cited 87 times**
152. G. Zhou, H. Zhang, S. Xu, X. Gui, N. Koratkar, J. Zhong, “Fast Triggering of Shape Memory Polymers using an Embedded Carbon Nanotube Sponge Network”, *Scientific Reports* 6, 24148 (2016).
153. L. Li, G. Zhou, L. Yin, N. Koratkar, F. Li, H.-M. Cheng, “Stabilizing Sulfur Cathodes using Nitrogen-Doped Graphene as a Chemical Immobilizer for Li-S Batteries”, *Carbon* 108, 120–126 (2016). **Cited 97 times**
154. A. Yang, J. Gao, B. Li, J. Tan, Y. Xiang, T. Gupta, L. Li, S. Suresh, J. C. Idrobo, T.-M. Lu, M. Rong, N. Koratkar\*, “Humidity sensing using vertically oriented arrays of ReS<sub>2</sub> nanosheets deposited on an interdigitated gold electrode”, *2D Materials* 3, 045012 (2016).
155. J. Yang, X. Li, S. Han, Y. Zhang, P. Min, N. Koratkar\*, Z.-Z. Yu, “Air-dried, high-density graphene hybrid aerogels for phase change composites with exceptional thermal conductivity and shape stability”, *Journal of Materials Chemistry A* 4, 18067-18074 (2016). **Cited 72 times**

---

## 2017

---

156. L. Li, L. Chen, S. Mukherjee, J. Gao, H. Sun, Z. Liu, X. Ma, T. Gupta, C. V. Singh, W. Ren, H.-M. Cheng, N. Koratkar\*, “Phosphorene as a Polysulfide Immobilizer and Catalyst in High-Performance Lithium-Sulfur Batteries”, *Advanced Materials* 29, 1602734 (2017). **Cited 217 times**
157. S. Suresh, Z. P. Wu, S. F. Bartolucci, S. Basu, R. Mukherjee, T. Gupta, P. Hundekar, Y. Shi, T.-M. Lu, N. Koratkar\*, “Protecting Silicon-Film Anodes in Lithium-Ion Batteries Using an Atomically-Thin Graphene Drape”, *ACS Nano* 11, 5051-5061 (2017). **Cited 79 times**
158. Y. Yu, J. Zhong, W. Sun, R. Kumar, N. Koratkar\*, “Solid-State Hybrid Fibrous Supercapacitors Produced by Dead-End Tube Membrane Ultrafiltration”, *Advanced Functional Materials* 27, 1606461 (2017).
159. J.-E. Kim, J.-H. Oh, M. Kotal, N. Koratkar, I. Oh, “Self-Assembly and Morphological Control of Three-Dimensional Macroporous Architectures Built of Two-Dimensional Materials”, *Nano Today* 14, 100–123 (2017).

160. M. Yarali, X. Wu, T. Gupta, D. Ghoshal, L. Xie, Z. Zhu, J. Bao, S. Chen, T. Luo, N. Koratkar and A. Mavrokefalos, “Effects of Defects on the Temperature Dependent Thermal Conductivity of Suspended Monolayer Molybdenum Disulfide Grown by Chemical Vapor Deposition”, **Advanced Functional Materials**, 27, 1704357 (2017).
161. V. Upadhyayula, D. E. Meyer, V. Gadhamshetty, N. Koratkar, “A Screening-Level Life Cycle Assessment of Graphene-Polyetherimide Coatings Protecting Unalloyed Steel from Severe Atmospheric Corrosion”, *ACS Sustainable Chemistry & Engineering* 5, 2656–2667 (2017).
162. G. Chilkoor, V. Upadhyayula, V. Gadhamshetty, N. Koratkar, M. Tysklind, “Sustainability of Renewable Fuel Infrastructure: A Screening LCA Case Study of Anti-Corrosive, Graphene Oxide Epoxy Liners in Steel Tanks for Storage of Biodiesel and its Blends”, *Environmental Science: Processes & Impacts* 19, 141-153 (2017).
163. Y.-G. Yu, J. Zhong, J. Liu, G.-X. Zhou, L.-X. Lv, C.-Y. Xu, N. Koratkar, “In-situ pressing synthesis of densely compacted carbon nanotubes reinforced nanocomposites with outstanding mechanical performance”, *Composites Science and Technology* 146, 131-138 (2017).
164. G.-X. Zhou, J. Zhong, H. Zhang, X. Hu, J. Wu, N. Koratkar, X. Shi, “Influence of releasing graphene oxide into a clayey sand: physical and mechanical properties”, *RSC Advances* 7, 18060-18067 (2017).

---

## 2018

---

165. L. Li, S. Basu, Y. Wang, Z. Chen, P. Hundekar, B. Wang, J. Shi, Y. Shi, S. Narayanan, N. Koratkar\*, “Self-heating–induced healing of lithium dendrites”, **Science** 359, 1513-1516 (2018). **Cited 183 times (over 26,000 views)**
166. G. Chilkoor, S. P. Karanam, S. Star, N. Shrestha, R. K. Sani, V. K. K. Upadhyayula, D. Ghoshal, N. Koratkar, M. Meyyappan, V. Gadhamshetty, “Hexagonal boron nitride: the thinnest insulating barrier to microbial corrosion”, **ACS Nano** 12, 2242–2252 (2018).
167. R. Huang, M. Huang, X. Li, F. An, N. Koratkar\*, Z.-Z. Yu, “Porous graphene films with unprecedented elastomeric scaffold-like folding behavior for foldable energy storage devices”, **Advanced Materials** 30, 1707025 (2018). **Cited 54 times**
168. A. Yang, D. Wang, X. Wang, D. Zhang, N. Koratkar\*, M. Rong, “Recent advances in phosphorene as a sensing material”, **Nano Today** 20, 13-32 (2018). **Cited 50 times**

169. D. Ghoshal, A. Yoshimura, T. Gupta, A. House, S. Basu, Y. Chen, T. Wang, Y. Yang, W. Shou, J. Hachtel, J. C. Idrobo, T.-M. Lu, S. Basuray, V. Meunier, S. Shi, N. Koratkar\*, “Theoretical and Experimental Insight into the Mechanism for Spontaneous Vertical Growth of ReS<sub>2</sub> Nanosheets”, **Advanced Functional Materials** 28, 1801286 (2018).
170. M. Kotal, J. Kim, R. Tabassian, S. Roy, N. Koratkar, I.-K. Oh, “Highly bendable ionic soft actuator based on Nitrogen-enriched 3D hetero-nanostructure electrode”, **Advanced Functional Materials** 28, 1802464 (2018).
171. P. Min, J. Liu, X. Li, F. An, P. Liu, Y. Shen, N. Koratkar, Z.-Z. Yu, “Thermally Conductive Phase Change Composites Featuring Anisotropic Graphene Aerogels for Real-Time and Fast-Charging Solar-Thermal Energy Conversion”, **Advanced Functional Materials** 28, 1805365 (2018). **Cited 58 times**
172. S. Basu, S. Suresh, K. Ghatak, S. Bartolucci, T. Gupta, P. Hundekar, R. Kumar, T.-M Lu, D. Datta, Y. Shi, N. Koratkar\*, “Utilizing van der Waals slippery interfaces to enhance the electrochemical stability of Silicon film anodes in lithium-ion batteries”, *ACS Applied Materials & Interfaces* 10, 13442–13451 (2018).
173. Z. Yue, T. Gupta, F. Wang, C. Li, R. Kumar, Z. Yang, N. Koratkar\*, “Utilizing a graphene matrix to overcome the intrinsic limitations of red phosphorus as an anode material in lithium-ion batteries”, *Carbon* 127, 588–595 (2018).
174. L. Li, L. Huang, R. J. Linhardt, N. Koratkar, T. J. Simmons, “Repurposing paper by-product lignosulfonate as sulfur donor/acceptor for high performance lithium-sulfur batteries”, *Sustainable Energy Fuels* 2, 422-429 (2018).
175. X. Wang, D. Wang, A. Yang, N. Koratkar, J. Chu, P. Lv, M. Rong, “Effects of adatom and gas molecule adsorption on the physical properties of tellurene: a first principles investigation”, *Physical Chemistry Chemical Physics* 20, 4058-4066 (2018).
176. S. Mukherjee, A. Banwait, S. Gixti, N. Koratkar, C. V. Singh, “Adsorption and diffusion of lithium and sodium on defective rhenium disulfide: A first principles study”, *ACS Applied Materials and Interfaces* 10, 5373–5384 (2018).
177. A. Bianco, Y. Chen, Y. Chen, D. Ghoshal, R. H. Hurt, Y. Kim, N. Koratkar\*, V. Meunier, M. Terrones, “A carbon science perspective in 2018: Current achievements and future challenges”, *Carbon* 132, 785-801 (2018).
178. L. Krishnia, B. S. Yadav, U. Palnitkar, P.V. Satyam, B. K. Gupta, N. A. Koratkar, P. K. Tyagi, “As-pyrolyzed sugarcane bagasse possessing exotic field emission properties”, *Applied Surface Science* 443, 184-190 (2018).

179. R. Kumar, V. Kumar, M. K. Jaiswal, R. Gupta, J. Ram, I. Sulania, S. Ojha, X. Sun, N. Koratkar, “Effect of Low Energy (keV) ion irradiation on structural, optical and morphological properties of SnO<sub>2</sub>-TiO<sub>2</sub> nanocomposite thin films”, *Journal of Materials Science: Materials in Electronics* 29, 13328-13336 (2018).
180. J. Garofalo, J. Lawler, D. Walczyk, N. Koratkar\*, “Analysis of Deposition Methods for Lithium-Ion Battery Anodes Using Reduced Graphene Oxide Slurries on Copper Foil”, *ASME Journal of Manufacturing Science and Engineering* 140, 094501 (2018).
181. J.-L. Pan, Z. Zhang, H. Zhang, P.-P. Zhu, J.-C. Wei, J.-X. Cai, J. Yu, N. Koratkar\*, Z.-Y. Yang, “Ultra-thin and Strong Electrospun Porous Fiber Separator”, *ACS Applied Energy Materials* 1, 4794-4803 (2018).
182. V. Chauhan, T. Gupta, N. Koratkar, R. Kumar, “Studies of the electronic excitation modifications induced by SHI of Au ions in RF sputtered ZrO<sub>2</sub> thin films”, *Materials Science in Semiconductor Processing* 88, 262-272 (2018).
183. X. Sun, Z. Lu, T. Gupta, S. Basu, N. Koratkar, M.A. Washington, T.-M. Lu, “Comparative study on the antioxidation behaviors of polycrystalline multilayer and single-crystalline monolayer graphene”, *2D Materials* 6, 015020 (2018).
184. R. Gupta, R.P. Chauhan, S.K. Chakarvarti, M.K. Jaiswal, D. Ghoshal, S. Basu, S. Suresh, S. F. Bartolucci, N. Koratkar, R. Kumar, “Enhanced field emission from copper nanowires synthesized using ion track-etch membranes as scaffolds”, *Journal of Materials Science: Materials in Electronics* 29, 19013-19027 (2018).
185. L. Li, L. Hou, J. Cheng, T. Simmons, F. Zhang, L.T. Zhang, R.J. Linhardt, N. Koratkar\*, “A flexible carbon/sulfur-cellulose core-shell structure for advanced lithium-sulfur batteries”, *Energy Storage Materials* 15, 388-395 (2018).

---

## 2019

---

186. L. Li, Z. Li, A. Yoshimura, C. Sun, T. Wang, Y. Chen, Z. Chen, A. Littlejohn, Y. Xiang, P. Hundekar, S. F. Bartolucci, J. Shi, S.-F. Shi, V. Meunier, G.-C. Wang, N. Koratkar\*, “Vanadium disulfide flakes with nanolayered titanium disulfide coating as cathode materials in lithium-ion batteries”, *Nature Communications* 10, 1764 (2019).
187. R. Jain, P. Hundekar, T. Deng, X. Fan, Y. Singh, A. Yoshimura, V. Sarbada, T. Gupta, A. S. Lakhnot, S. O. Kim, C. Wang, N. Koratkar\*, “Reversible Alloying of Phosphorene with Potassium and its Stabilization using Reduced Graphene Oxide Buffer Layers”, *ACS Nano* 13, 14094-14106 (2019).

188. P. Hundekar, S. Basu, J. Pan, S. F. Bartolucci, S. Narayanan, Z. Yang, N. Koratkar\*, "Exploiting self-heat in a lithium metal battery for dendrite healing", **Energy Storage Materials** 20, 291-298 (2019).
189. Q.-W. Wang, H.-B. Zhang, J. Liu, S. Zhao, X. Xie, L. Liu, R. Yang, N. Koratkar, Z.-Z. Yu, "Multifunctional and Water-Resistant MXene-Decorated Polyester Textiles with Outstanding Electromagnetic Interference Shielding and Joule Heating Performances", **Advanced Functional Materials** 29, 1806819 (2019).  
**Cited 125 times**
190. Z. Zhang, S. Basu, P. Zhu, H. Zhang, A. Shao, N. Koratkar\*, Z. Yang, "Highly sulfiphilic Ni-Fe bimetallic oxide nanoparticles anchored on carbon nanotubes enable effective immobilization and conversion of polysulfides for stable lithium-sulfur batteries", *Carbon* 142, 32-39 (2019).
191. D. Ghoshal, R. Jain, N. Koratkar\*, "Graphene's Partial Transparency to van der Waals and Electrostatic Interactions", *Langmuir* 35, 12306-12316 (2019).  
**Featured on the Cover**
192. S. Basu, N. Koratkar, Y. Shi, "Structural transformation and embrittlement during lithiation and delithiation cycles in an amorphous silicon electrode", *Acta Materialia* 175, 11-20 (2019).
193. V. Chauhan, T. Gupta, P. Singh, P.D. Sahare, N. Koratkar, R. Kumar, "Influence of 120 MeV S<sup>9+</sup> ion irradiation on structural, optical and morphological properties of zirconium oxide thin films deposited by RF sputtering", *Physics Letters A* 383, 898-907 (2019).
194. X.-P. Li, Y. Li, X. Li, D. Song, P. Min, C. Hu, H.-B. Zhang, N. Koratkar, Z.-Z. Yu, "Highly sensitive, reliable and flexible piezoresistive pressure sensors featuring polyurethane sponge coated with MXene sheets", *Journal of Colloid and Interface Science* 542, 54-62 (2019).
195. D. Ghoshal, T. Wang, H.-Z. Tsai, M. Crommie, N. Koratkar\*, S.-F. Shi, ""Catalyst-Free and Morphology-Controlled Growth of 2D Perovskite Nanowires for Polarized Light Detection", *Advanced Optical Materials* 7, 1900039 (2019).
196. D. Wang, A. Yang, T. Lan, C. Fan, J. Pan, Z. Liu, J. Chu, H. Yuan, X. Wang, M. Rong, N. Koratkar\*, "Tellurene based chemical sensor", *Journal of Materials Chemistry A* 7, 26326-26333 (2019).
197. 10. R. Jain, N. Koratkar\*, "Quantifying a Scientist's Intellectual Leadership", *Carbon* 150, 485-488 (2019).

198. P. Hundekar, S. Basu, X. Fan, L. Li, A. Yoshimura, T. Gupta, V. Sarbada, A. Lakhnot, R. Jain, S. Narayanan, Y. Shi, C. Wang, N. Koratkar\*, "In Situ Healing of Dendrites in a Potassium Metal Battery", **Proceedings of the National Academy of Sciences (PNAS)** 117, 5588-5594 (2020).
199. T. Gupta, D. Ghoshal, A. Yoshimura, S. Basu, P. K. Chow, A. S. Lakhnot, J. Pandey, J. M. Warrender, H. Efstathiadis, A. Soni, E. Osei-Agyemang, G. Balasubramanian, S. Zhang, S.-F. Shi, T.-M. Lu, V. Meunier, N. Koratkar\*, "An Environmentally Stable and Lead-Free Chalcogenide Perovskite", **Advanced Functional Materials** 30, 2001387 (2020).
200. R. Rani, A. Yoshimura, S. Das, M. Sahoo, A. Kundu, K. Sahu, V. Meunier, S. K. Nayak, N. Koratkar\* and K. S. Hazra, "Sculpting Artificial Edges in Monolayer MoS<sub>2</sub> for Controlled Formation of Surface Enhanced Raman Hotspots", **ACS Nano** 14, 6258-6268 (2020).
201. S. Jung, Y. Cui, M. Barnes, C. Satam, S. Zhang, R. Chowdhury, A. Adumbumkulath, O. Sahin, C. Miller, S. Sajadi, L. Sassi, Y. Ji, M. Bennett, M. Yu, J. Friguglietti, F. Merchant, R. Verduzco, S. Roy, R. Vajtai, J. Meredith, J. Youngblood, N. Koratkar, M. Rahman, P. Ajayan, "Multifunctional bionanocomposite coatings for perishable fruits", **Advanced Materials** 32, 1908291 (2020). **Featured on the Inside Cover**
202. A. S. Lakhnot, T. Gupta, Y. Singh, P. Hundekar, R. Jain, F. Han, N. Koratkar\*, "Aqueous Lithium-Ion Batteries with Niobium Tungsten Oxide Anodes for Superior Volumetric and Rate Capability", **Energy Storage Materials** 27, 506-513 (2020).
203. A. Yang, J. Chu, W. Li, D. Wang, X. Yang, T. Lan, X. Wang, M. Rong, N. Koratkar\*, "Short Period Sinusoidal Thermal Modulation for Quantitative Identification of Gas Species", *Nanoscale* 12, 220-229 (2020).
204. S. Chatterjee, A. Anikin, D. Ghoshal, J. Hart, Y. Li, S. Intikhab, D. Chareev, O. Volkova, A. Vasiliev, M. Taheri, N. Koratkar, G. Karapetrov, J. Snyder, "Nanoporous Metals from Thermal Decomposition of Transition Metal Dichalcogenides", *Acta Materialia* 184, 79-85 (2020).
205. G. Chilkoor, R. Sarde, J. Islam, K. ArunKumar, I. Ratnayake, S. Star, B. K. Jasthi, G. Sereda, N. Koratkar, M. Meyyappan, V. Gadhamshetty, "Maleic anhydride-functionalized graphene nanofillers render epoxy coatings highly resistant to corrosion and microbial attack", *Carbon* 159, 586-597 (2020).

206. A. Bianco, Y. Chen, E. Frackowiak, M. Holzinger, N. Koratkar\*, V. Meunier, S. Mikhailovsky, M. Strano, J. Tascon, M. Terrones, “Carbon Science Perspective in 2020: Current Research and Future Challenges”, *Carbon* 161, 373-391 (2020).
207. A. Yoshimura, N. Koratkar, V. Meunier, “Substitutional transition metal doping in MoS<sub>2</sub>: a first-principles study”, *Nano Express* 1, 010008 (2020).
208. R. Kumar, V. Chauhan, N. Koratkar, S. Kumar, A. Sharma, K.H. Chae, S.O. Won, “Influence of high energy ion irradiation on structural, morphological and optical properties of high-k dielectric hafnium oxide (HfO<sub>2</sub>) thin films grown by atomic layer deposition”, *Journal of Alloys and Compounds* 831, 154698 (2020).
209. Z. Zhang, A. Shao, D. Xiong, J. Yu, N. Koratkar, Z. Yang, “Efficient Polysulfide Redox Enabled by Lattice-Distorted Ni<sub>3</sub>Fe Intermetallic Electrocatalyst Modified Separator for Lithium-Sulfur Battery”, *ACS Applied Materials & Interfaces* 12, 19572-19580 (2020).
210. S. Han, J. Yang, X. Li, W. Li, X. Zhang, N. Koratkar, and Z. Z. Yu, “Flame Synthesis of Superhydrophilic Carbon Nanotubes/Ni Foam Decorated with Fe<sub>2</sub>O<sub>3</sub> Nano-particles for Water Purification via Solar Steam Generation”, *ACS Applied Materials & Interfaces* 12, 13229-13238 (2020).
211. M. Kamble, A. S. Lakhnot, N. Koratkar,\* Catalin Picu, “Heterogeneity-induced mesoscale toughening in polymer nanocomposites”, *Materialia* 11, 100673 (2020).
212. P. Hundekar, R. Jain, A. S. Lakhnot, N. Koratkar\*, “Recent advances in the mitigation of dendrites in lithium-metal batteries”, *Journal of Applied Physics* 128, 010903 (2020).
213. A. Singh, S. Sharma, G. Yadagiri, S. Parvez, R. Gupta, N. Singhal, N. Koratkar, O. P. Singh, S. Sundar, V. Shanmugam, S. L. Mudavath, “Sensible graphene oxide differentiates macrophages and Leishmania: a bio-nano interplay in attenuating intracellular parasite”, *RSC Advances* 10, 27502-27511 (2020).
214. M. Kamble, A. S. Lakhnot, S. F. Bartolucci, A. G. Littlefield, C. R. Picu, and N. Koratkar\*, “Improvement in Fatigue Life of Carbon Fibre Reinforced Polymer Composites via a Nano-Silica Modified Matrix”, *Carbon* 170, 220-224 (2020).
215. I Oh, S Nam, P Thangasamy, SW Oh, M Mahato, N Koratkar, “Dual-ion acceptable vanadium carbide nanowire cathode integrated with carbon clothes for long cycle stability”, *Nanoscale*, accepted, in-press (2020).

## **Book:**

Nikhil Koratkar, "**Graphene in Composite Materials- Synthesis, Characterization and Applications**", ISBN No. 978-1-60595-056-3, DEStech Publications (2013), Lancaster, PA, USA.

## **Book Chapters:**

Zuankai Wang, Nikhil Koratkar. "Understanding and Controlling Wetting Phenomena at the Micro and Nanoscales" in Nano-structured Thin Films and Surfaces, *Wiley-VCH* (2010). ISBN-10: 3-527-32155-1.

Nikhil Koratkar, Jonghwan Suhr. "Mechanical Damping in Nanocomposites" in Encyclopedia of Nanoscience and Nanotechnology, *American Scientific Publishers* (2011), Edited by H. S. Nalwa, Volume 16: Pages (127-146), ISBN:1-58883-165-5.

Iti Srivastava, Mohammad A. Rafiee, Fazel Yavari, Javad Rafiee and Nikhil Koratkar, "Epoxy Nanocomposites – Graphene a promising filler" in Graphene Based Polymer Nanocomposites, Edited by Prithu Mukhopadhyay and Rakesh Gupta, *CRC Press* (2013); ISBN: 978-1-4398-2779-6.

Rahul Krishnan, Rahul Mukherjee, Toh-Ming Lu and Nikhil Koratkar, "Nano-engineered Silicon Anodes for Lithium-Ion Rechargeable Batteries" in Nanotechnology for Li-ion Batteries, Edited by David Lockwood, *Springer* (2013); ISBN: 978-1-4614-4604-0.

## **Patents:**

1. "Rechargeable aluminum ion battery," R. Mukherjee, N. Koratkar, US Patent 9,819,220 B2.
2. "Graphene-reinforced ceramic composites and uses therefor" E. Corral, L. Walker, V. Marotto, M. Rafiee, N. Koratkar, US Patent 8,962,504 B2.